



STOCK OPTION BACKDATING : THE FRENCH EVIDENCE

Mémoire – Majeure Finance

Guillaume CHARTON

Frédéric VELTEN-JAMESON

Under the supervision of Christophe PERIGNON

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Introduction

In the past fifteen years, stock options have gone from being the best incentive and compensation tool for aligning the interests of managers and shareholders to being vilified because of a string of scandals in corporate America as well as in France concerning the granting (in terms of size and timing) and the exercise (in terms of timing) of the stock options. They enable their holder to buy listed shares of the company at a price close to the share price at the time of the grant ; the exercise period starts a couple of years after the grant (the period between the grant and the authorization of exercise is known as the *vesting period*), when hopefully the share price will have undergone considerable growth, and the holder of the stock option will make the profit between the share price and the exercise price.

In France, critics have mainly centred on the size of stock option plans for CEOs and around the untimely exercise of options based on insider trading : a study published in May 2007 showed that in 2007, 41% of the compensation of the CAC 40 CEOs resulted from capital gains derived from the exercise of stock options, whereas it represented 18% in 2006¹ ; in 2007, it was uncovered that before the brutal fall of the EADS share price in mid-2006, a Dutch blue chip corporation listed on the French stock exchange and part of the CAC 40, many top executives had exercised their stock options, most likely on the basis of insider information.

In the United States, research has focused on the share price pattern of the company at and around the time of the award or of the exercise of the company stock options of CEOs. In 2005, Erik Lie, from the University of Iowa, published a ground-breaking paper on the timing of the granting of stock options to CEOs² and showed that for a certain category of plans, the awarding occurred on a date where the

¹ Study published by *L'Expansion* on May 28, 2008 on the global compensation of the CAC 40 CEOs, including salary, bonus, dividends, stock option capital gains and attendance allowances ; this showed that in 2006, the global compensation was of €102 million with €18.8 million attributed to capital gains from exercise of stock options while in 2007 those figures were respectively €161 million and €66 million. It appears that most CEOs exercised their stock options before August 2007 and the downturn of equity markets.

² Erik Lie, On the Timing of CEO Stock Option Awards. 2005. *Management Science*. Vol. 51, No. 5, May 2005, pp. 802–812

stock price had shown negative abnormal returns before the date of the grant and positive abnormal returns afterward. It is easy to understand that it is in the best interest of the holder of a stock option to have the lowest exercise price and all the evidence pointed to a wide use of backdating in the granting of stock option plans to CEOs, whereby the grant was given *ex post* on a day where the share price – and consequently the exercise price – was particularly low.

The *Wall Street Journal* published a series of articles on the subject in 2005 and 2006 and did its own study on the backdating of CEO stock options with a slightly different and more simple methodology where it looked at the stock price pattern around the grant dates and found that for seven companies, the awards had repeatedly fallen on a day when the stock price was at its lowest. Whereas Lie's study did not point any fingers at suspected companies but established in a scientific way the high probability of backdating, the *Wall Street Journal* named names which provoked resignations within the six companies mentioned and inquiries first from the regulator, then from the legal system.

Given the interest raised by the study in the United States and the fact that the use of backdating seemed to be so widespread, we thought it would be interesting to see if the conclusions of Lie's study were applicable in France. To the best of our knowledge, no such study has been conducted for the French market. The legal and regulatory framework seemed to allow for backdating : there is no obligation to disclose to the regulator that a stock option plan has been awarded, before the end of the year whereas in the US this disclosure is required within two days of the grant (before 2002, the disclosure was required within 30 days, allowing for time to backdate). We therefore carried out this study on a sample of 34 companies taken from the French blue chip index (the *CAC 40*) in its composition as of December 31, 2006 and over a period of ten years, from 1997 to 2006. Our findings show that there is a striking difference between the pattern of the scheduled and the unscheduled stock option plans, but show no evidence of backdating. From a regulatory point of view, it is interesting to look at what may prevent backdating. The reasons seem to be two-fold : first of all, stock option plans are rarely awarded to one individual, and

when they are, it is not the CEO ; secondly, the fact that the exercise price is calculated on a 20-day average of the stock price makes the use of backdating less effective.

1. Sample selection and methodology

1.1. Sample description

To start building a sample, it was necessary to restrict our field and focus on a certain group of listed companies. The sample built for the study was not chosen on the assumption that there would be a stronger likelihood of finding evidence of backdating but simply because it was more likely that we would find all the information needed to extract the results of the study. The sample therefore consists of all the companies of the CAC 40 who (i) are incorporated under French law, and (ii) have awarded stock options to their employees and/or executives. Information was taken from the yearly registration documents the companies have to file with the French regulator (the *Autorité des Marchés Financiers* or *AMF*). The years covered are 1997 to 2006 : the late 1990's corresponds to the period when stock option plans became more widely used and 1997 seemed an adequate start; when we started collecting data, the registration documents for year 2007 had not yet come out.

For a typical stock option award, the following information was collected :

Company	ACCOR
Date of the grant	08/01/2002
Unadjusted exercise price	37,77 €
Total number awarded	3 438 840
to "mandataires sociaux"	435 000
to ten first beneficiaries excl. above	290 000
Number of beneficiaries	2 032
Exercise price calculation method for grant	95% of 20-d avge.
Date of EGM authorization	29/05/2001
Length of authorization (mths)	38
Content of authorization on exercise price	min 80% of 20-d avge.
Cap on number of stock options	5% of total shares
Subscription / Acquisition	Subscription

The exercise price may be adjusted on the occurrence of certain events having an effect on the underlying security of the option, such as the payment of a high dividend (one occurrence in our sample), a stock split, a stock consolidation... This is why the unadjusted exercise price is needed.

Out of the total number of stock option awarded, the company must disclose the

number awarded each year to the *mandataires sociaux* (legally, these are the executives that have the ability to represent the company : *directeur général* and *directeur général délégué* for a *société anonyme*) and the number awarded to the ten largest beneficiaries who are not *mandataires sociaux*.³ These figures give us an idea of whether executives are very concerned by the stock option plan or not.

Under French law, the exercise price of a stock option must be equal to at least 80% of the 20-day average of the stock price on the day preceding the grant. However, the discount to the 20-day average of the stock price may be limited by the Extraordinary General Meeting (EGM) of the shareholders of the company which gives the authorization to the board of directors of the company to launch a plan. The board of directors may also choose to limit the discount.

Lastly, a stock option plan may enable the holder of the option to *subscribe* to new shares that would be *issued* by the company upon exercise of the option – in this case it is legally coined as a *plan d’option de souscription d’actions* – or *acquire* existing shares that would be *remitted* by the company – in this case, the plan is known as a *plan d’option d’acquisition d’actions*. This is important for the calculation of the exercise price, as we will see below.

A summary of the sample is shown below :

Table 2 - sample description	
Number of companies	34
Number of stock option plans	435
Number of grant dates	414

Out of the 40 companies making up the *CAC 40*, six were excluded for the following reasons :

- (i) either they were registered under a law other than the French one : Arcelor (Dutch law), Dexia (Belgian law), EADS (Dutch law) and ST Microeletronics (Dutch law) ; the methods of granting plans and calculating the exercise

³ For the sake of clarity, the terms ‘*mandataires sociaux*’ and ‘executives’ will be used indistinctively in this study, when referring to a French company.

prices are specific to French law and French law applies only to companies registered under French law ; therefore keeping these companies in our sample would have rendered our data inconsistent ;

(ii) or they were French but no stock options were granted : GDF and EDF.

The contribution of each company in terms of stock option plans is very different as it ranges from a low of one to a high of 51. The breakdown of number of plans per company is as follows :

Company	Number	Fraction
ACCOR	11	2,53%
AIR FRANCE KLM	1	0,23%
AIR LIQUIDE	11	2,53%
ALCATEL LUCENT	51	11,72%
ALSTOM	9	2,07%
AXA	21	4,83%
BNP PARIBAS	11	2,53%
BOUYGUES	14	3,22%
CAP GEMINI	11	2,53%
CARREFOUR	13	2,99%
CREDIT AGRICOLE	7	1,61%
DANONE	28	6,44%
ESSILOR	20	4,60%
FRANCE TELECOM	1	0,23%
L'OREAL	22	5,06%
LAFARGE	15	3,45%
LAGARDERE	10	2,30%
LVMH	17	3,91%
MICHELIN	9	2,07%
PERNOD RICARD	13	2,99%
PEUGEOT	8	1,84%
PPR	19	4,37%
RENAULT	12	2,76%
SAINT GOBAIN	10	2,30%
SANOFI AVENTIS	5	1,15%
SCHNEIDER	16	3,68%
SOCIETE GENERALE	11	2,53%
SUEZ	11	2,53%
TOTAL	9	2,07%
UNIBAIL RODAMCO	10	2,30%
VALLOUREC	2	0,46%
VEOLIA	6	1,38%
VINCI	11	2,53%
VIVENDI	10	2,30%
Total	435	100,00%

1.2. Sample Classification

As mentioned above, stock option plans may be of two types : subscription plans or acquisition plans. A breakdown of the two types of plans follows :

Type of plan	Number	Fraction		
<i>Subscription</i>	281	64,6%		
<i>Acquisition</i>	149	34,3%		
<i>Unknown</i>	5	1,1%		
Breakdown / year	Subscr.	Acqu.	Unknown	Total
1997	19	9	0	28
1998	16	17	0	33
1999	17	24	0	41
2000	23	26	0	49
2001	32	21	0	53
2002	30	13	1	44
2003	33	13	0	46
2004	34	8	1	43
2005	42	9	2	53
2006	35	9	1	45

Subscription plans are larger in number and more advantageous for a company : in the case of acquisition plans, at the end of the vesting period of a specific option plan, the company needs to buy the amount of shares corresponding to the amount to be delivered if all the options were exercised (even if the stock option plan is out of the money). This means a certain amount of capital must be used for the purpose and if the stock price is going down, the options will likely not be exercised and the company will have to sell the stock on the market at a loss ; furthermore, a company may not own more than 10% of its shares and this would naturally limit the amount of stock options to be handed out to employees and executives. On the other hand, a subscription plan means dilution for existing shareholders, but as the EGM usually leaves it up to the board of directors to choose whether a grant is a subscription plan or an acquisition plan it is normal that almost 65% of the plans are subscription ones.

Another fundamental difference could have had a more direct implication for our study. As explained above, the exercise price is calculated on the basis of the 20-day

average of the stock price on the day before the stock-option grant. Legally, it cannot be lower than 80% of this average but usually it is limited at 95% or 100%. However, for acquisition options, there is a second constraint : the exercise price must be above 80% of the average acquisition price of the shares held by the company (including the ones bought in the process of a share repurchase plan). This means that in a period of falling stock prices, there will be more incentive to grant subscription plans rather than acquisition ones because the exercise price of acquisition plans would be limited by the second restriction. (Table 4 above shows that 2001, a year of sharp decrease of the equity markets, is the first year where there are more subscription plans than acquisition plans.) This also means that the exercise price of an acquisition option might be above the 100% of the 20-day average and actually disconnected from the 20-day average criterion, which would then cancel the utility of backdating. However, we checked for possible different patterns between the subscription and acquisition option plans and there was no significant difference.

A second classification forms the basis of the whole study on backdating. It is the separation between *scheduled* and *unscheduled* stock option plans. A scheduled plan is defined as occurring within ten days of the one-year anniversary of the prior year's plan and unscheduled if not.

For the year 1997, it is therefore not possible to define unscheduled or scheduled plans. These plans were taken out of the study, as well as the plans awarded on the same day in the same company: in certain cases, there is a *double* plan because of the granting of one subscription and one acquisition plan. In other cases, there is no easy explanation at hand for these double plans, especially that the exercise price can be different though the stock option plans are awarded on the same day. An explanation may lie in the fact that these stock option plans do not concern the same people ; the following is an interesting example :

Table 5 - two plans awarded on the same day		
Company	plan 1	plan 2
Date of the grant	14/05/2001	14/05/2001
Unadjusted exercise price	66,00 €	61,77 €
Total number awarded	1 105 877	552 500
to "mandataires sociaux"	0,00%	81,50%
to ten first beneficiaries excl. above	0,00%	18,50%
Number of beneficiaries	44 669	4
Discount/premium to 20-day average	0,82%	-5,64%
Subscription / Acquisition	Acquisition	Acquisition

The basis of the separation is to see if there is a difference in patterns between both plans, as the scheduled are much less likely to be backdated than the unscheduled ones. The breakdown between scheduled and unscheduled plans and year by year is as follows :

Table 6 - Unscheduled / Scheduled plans - total / across time					
	Unscheduled	Scheduled	Double	Unknown	Total
Total	214	159	17	45	435
%	49%	37%	4%	10%	100%
1997	0	0	0	28	28
1998	18	12	0	3	33
1999	22	16	1	2	41
2000	26	15	3	5	49
2002	26	15	0	3	44
2003	21	20	3	2	46
2004	21	22	0	0	43
2005	26	25	1	1	53
2006	25	17	2	1	45

1.3. Cumulative abnormal returns model

The idea is to examine how the share price of the company performs around the stock option grant date, but adjusted to reflect the performance of the market.

Lie's study examines the cumulative abnormal returns from 30 dealing days before the grant to 30 dealing days after. These are calculated as the cumulative sums of the differences between the daily stock returns and the predicted daily returns of the stock price as derived from the three-factor model of Fama and French (1993), the idea being that the result is different for scheduled and unscheduled stock option

plans.

Our model is simpler : we calculate the cumulative sums of the differences between the daily stock returns and the daily returns of the CAC 40. This is loosely based on the Capital Asset Pricing Model, but without adjusting for the beta of each stock.

The choice of the 30 dealing days for Lie's study is guided by the fact that before 2002, US company's had to declare the grant date of a stock-option plan with the regulator within 30 dealing days of the given grant date, thereby limiting the length of time between the chosen grant date and the date of the choice of the grant date. In France, there are two kinds of reportings. The legal framework requires the company to inform every year its shareholders, during the general meetings, in a *rapport spécial* of the board of directors, of the stock option grants that occurred during the year⁴ ; however, this report is only available at the time of the general meeting and only to shareholders. The regulatory framework requires that the same information given in the *rapport spécial* be included in the *document de référence* (similar to the registration document), a document companies usually publish every year and that is available on the website of the regulator⁵. This document must be published five months at the latest after the end of the accounting year, and usually takes into account all important events that could have occurred between year-end and the publication of the document, including the stock-option plans granted after year's end and before publication of the registration document : this means that a maximum of one year could occur between the grant date and the publication of it, easily allowing for backdating.

⁴ Articles L 225-177 and L 225-186 of the *Code de Commerce*

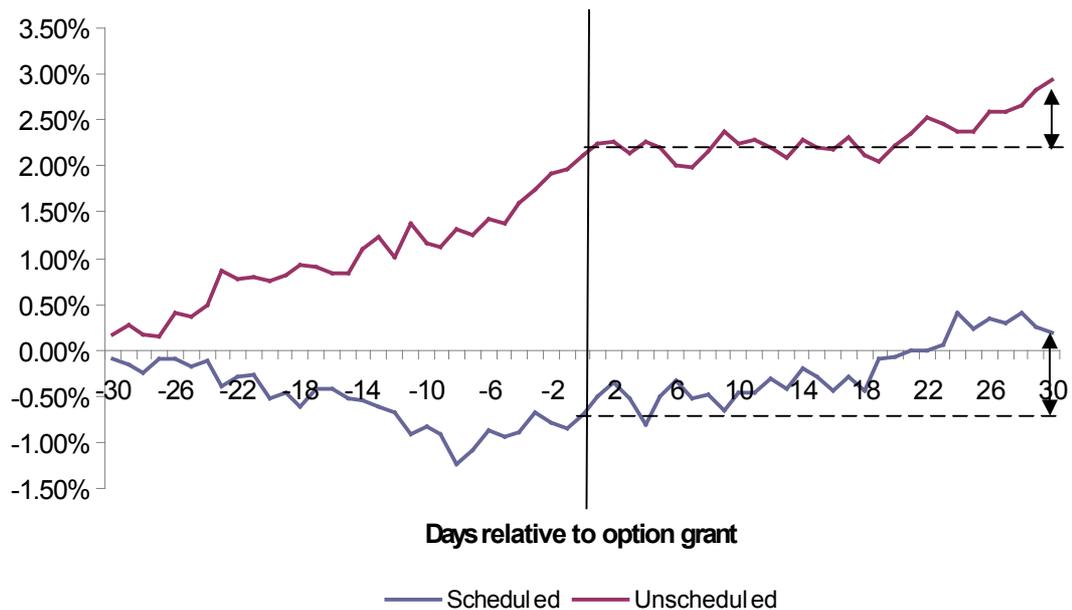
⁵ Article 212-1 et s., *Règlement général de l'AMF*

2. Empirical Results

In this section, we will highlight the main empirical results of our study and compare them with the results obtained by Erik Lie. Overall, it appears that the return patterns we found for any of the categories Lie introduced (scheduled as well as unscheduled) are not similar to those he pointed to in his 2005 study. This means that as far as backdating is concerned, France, or at least French blue chip companies did not resort to backdating stock option grant dates (the potential reasons will be explained in part 3).

2.1. Empirical results – French study

Figure 1. Cumulative Abnormal Stock Returns Around Stock Option Grants



Note : Abnormal returns are calculated as the stock return on the day minus the CAC40 return on the day

2.1.1. Unscheduled plans reject the hypothesis of backdating

The most interesting feature of unscheduled plans is that companies are *free* to grant these stock options on this particular day and therefore could have chosen a different day. If we look at the abnormal pattern of these plans we can see that they

were issued on average after the shares of the companies went up 2% relative to the CAC40 index during the month before the grant date. Even more surprising, they were granted at a maximum over the month preceding the grant date. If we accept that options are granted with a strike close to the price as of the date of the grant (or at least very close to the 20-day stock moving average), this was quite unfavourable to the holders of such stock options, as they missed the rise of the stock price before the grant date.

However we still remark an ascending pattern over the 30 days following the grant. This means that there is an immediate profit (yet unrealized, as stock options always have a multi-year vesting period) on the month after the grant. Does this mean that companies backdated the grant of stock options? We think not as the pattern lacks the perfection in the timing that backdating can provide. It reinforces however the intuition, that companies are opportunistic when it comes to granting unscheduled stock options. This rising pattern, compared to the relatively flat shape of scheduled plans, is a clue that unscheduled plans will be more probable when the stock price is rallying up, on the back of strong positive momentum (i.e. the belief that if the stock has risen over a defined period, it will continue to do so in the future). This is a sign, we think, that these plans are set proactively (companies betting on the rise of their stock price) rather than retroactively (through backdating)

Consequently, we can suggest that backdating is neither a generalized phenomenon – otherwise the abnormal pattern would be V-shaped – nor a well mastered practice by companies, as they consistently miss out on an important part of the stock price performance before the grant.

2.1.2. Scheduled plans

In Lie's study, an award is classified as scheduled if it occurred within one week of the one-year anniversary of the prior year's award date. Companies don't have the freedom to set the date (either proactively or retroactively). This is the comparative part of the sample. Here we cannot see any particular trend. The V-shape of the pattern exists but is not centered on the grant date. The return in excess of the CAC

40 (i.e. what we call abnormal return) is mainly negative but becomes positive around 20 days after the grant.

2.2. A comparison with the Lie Paper

2.2.1. Context of the paper

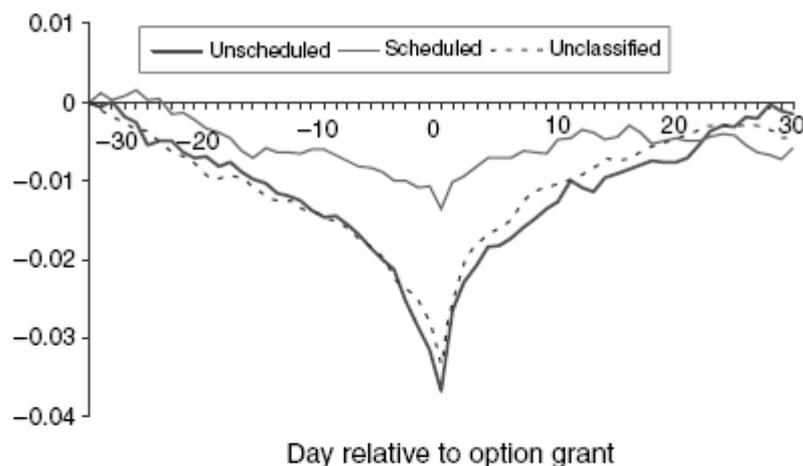
In 2005, Lie published a study on stock returns around stock option grant dates. It followed a series of articles on the same topic, but proposed a rather different explanation to the fact that stock returns around grant dates are significantly positive. Yermack (1997) examined the stock returns around 620 stock option awards to CEOs between 1992 and 1994. He found that, while the returns on the days leading to the award were normal, the stock returns during the 50 trading days afterward exceeded those of the market by more than 2%. He attributed this *abnormal* and systematic return to the fact that executives were opportunistic in granting stock options, by timing them before anticipated stock rises. Aboody and Kasznik (2000) focus on scheduled awards (i.e. where there is no possibility of opportunistic behavior) and found that the returns before the awards were statistically undistinguishable from zero. However, they interpreted the fact that the return on the 30 days after the grant was almost 2% and proposed as an explanation that executives time the release of information around fixed option awards opportunistically. Lie (2005) then studied a sample of 5,977 CEO stock option awards by US companies between 1992 and 2002. We will now compare his findings with the results we found based on the 34 companies part of the CAC40.

2.2.2. Empirical Results:

Lie found a very interesting pattern for unscheduled stock option grants (based on 1,446 unscheduled awards). On average, the stock abnormal return (i.e. the return in excess of the one predicted by the Fama and French three-factor model, was -3% on the 30 days leading to the stock option grant. On the 30 days following the grant, Lie found a sharp reversal in the stock abnormal return pattern (+2% on the next 10 days and another 2% on the next 20 days). This leads to a V-shape curve as

presented below.

Figure 2. Cumulative Abnormal Stock Returns Around Stock Option Grants, Lie (2005)



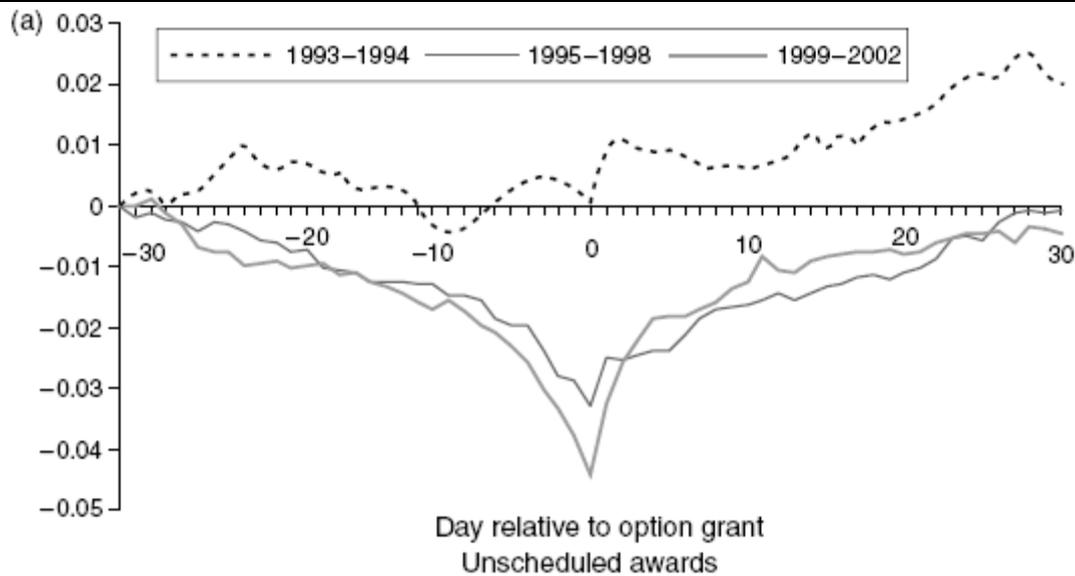
Notes. This figure displays the cumulative abnormal stock returns from 30 days before through 30 days after stock option grants to CEOs. Abnormal stock returns are estimated using the three-factor model described in Fama and French (1993), where the estimation period is the year ending 50 days before the award date. An award is classified as scheduled if it occurred within one week of the one-year anniversary of the prior year's award date, and unscheduled if it did not occur within one week of this anniversary or if no options were awarded during the prior year. If insufficient information is available to classify an award, it is left unclassified.

Source: Lie (2005)

As one can see, the pattern is very clear (unlike ours). The timing of the grant is perfect, the stock options being attributed at the low point over the 60 days around the grant date. This is why we argued that the pattern of the cumulative abnormal returns of our unscheduled stock options lacked the perfection that backdating can offer, although the return is positive on the days after the grant (see figure 1). The perfection of the timing (stock options granted on the date where the stock price is at its lowest point) made Lie rule out the explanation that executive were proactively anticipating a rise of the share price and therefore setting up stock option plans.

Another finding of the Lie paper was that companies had been more and more *efficient* at timing their plans overtime (as shown in figure 3 below) :

Figure 3. Cumulative Abnormal Stock Returns Around Stock Option Grants, Lie (2005)



Source: Lie (2005)

2.3. Case Study: a stock option plan with strong suspicions of backdating:

Although our aggregated results seem to reject the hypothesis that backdating is used in France by companies of the CAC 40, we tried to find an individual plan where the V-shaped pattern exists and looks flagrant.

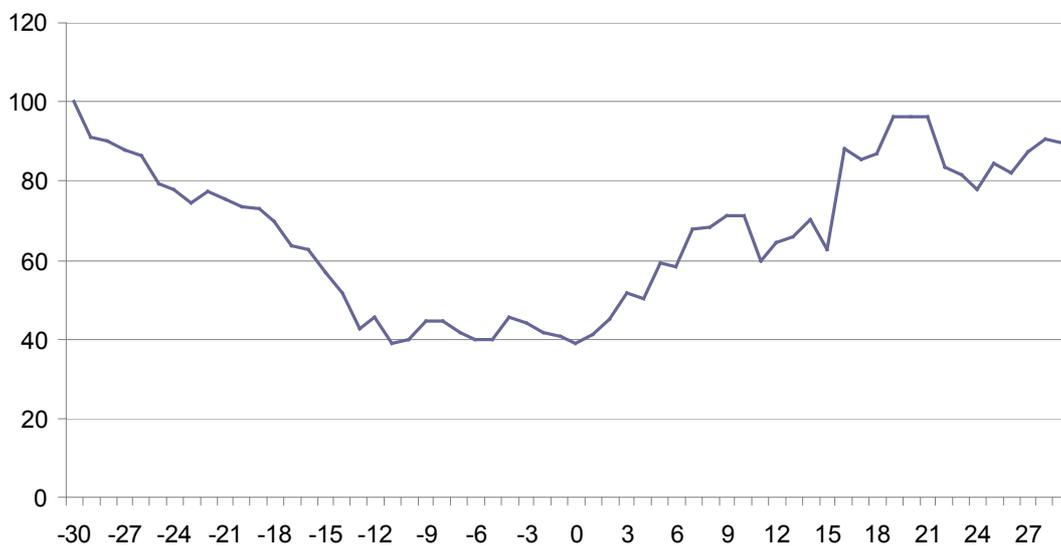
2.3.1. How did we select it?

We acknowledge that the Cumulative Abnormal Return model is very useful to assess whether a plan could have been backdated. However we chose an even more simple approach to identify suspicious plans, by simply looking at the price pattern around the grant date. The rationale of opting for this method is that it is likely to be what the executives were looking at when they granted the plan. One was particularly striking (see figure 4)

2.3.2. What is the pattern?

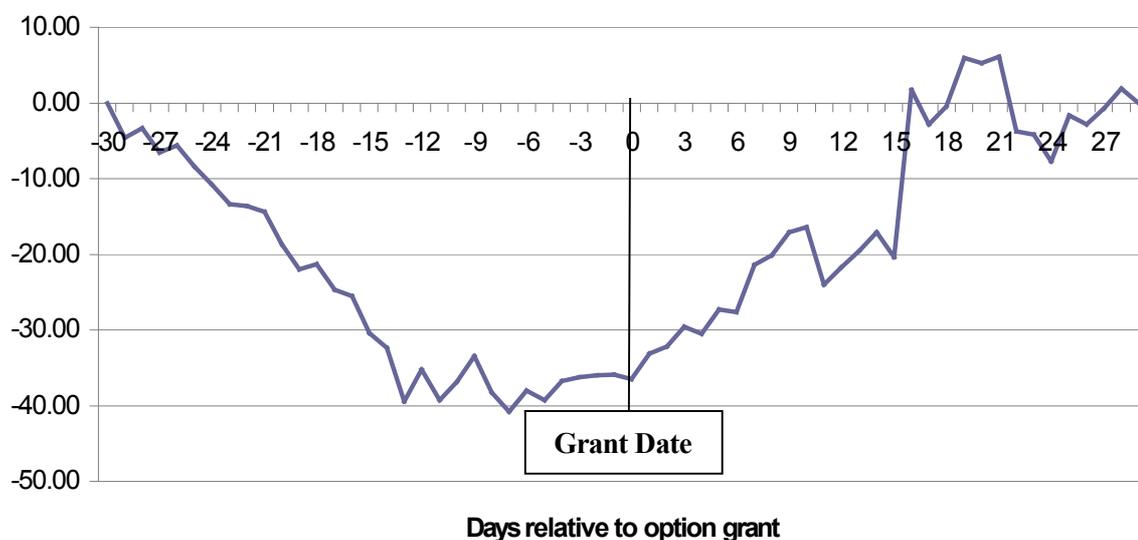
If we rebase the share price as of D-30: the share price declined 60% to reach 40 on the day of the grant and bounce back by 125% to 90 over the 30 days after the grant. In this operation, the beneficiaries achieved a 63% performance. Note that the performance of the stock option is different from the performance of the stock (125%) as the strike price is not equal to 40 (i.e. the share price on the day of the grant) but to 54 (the average on the 20 days before the grant). If we now look at the cumulative abnormal returns, we find a pattern similar to a V-shape.

Figure 4. Selected Plan: Share price evolution around stock option grant



Note: basis 100 at D-30 before grant

Figure 5. Selected Plan: Cumulative Abnormal Return around Grant Date



It is impossible to say whether the timing of this specific grant is the result of lucky timing or of backdating.

2.3.3. Other elements of suspicion:

Let's now have a look at the features of the plan. We could suppose that backdated plans are more likely to concern a relatively small number of people (the smaller, the easier it is to backdate and the easier it is to keep the process confidential). Top executives who have the power to grant stock options and who therefore could have an incentive to backdate stock option awards, are also very likely to be beneficiaries. In the case of this plan, there were 16 beneficiaries. Unfortunately we have no information on whether the 16 people belong to top management and the fact that the number of options granted (30,500) is fairly small relative to previous and following plans makes it an unlikely candidate for a top-executive only plan.

To conclude, there is relatively strong evidence that the conclusions of the Lie study on the timing of stock option awards are not applicable to the French market, at

least for the CAC 40 index. The possible reasons that could explain that our findings differ from Lie's are the object of the next section.

3. Interpretation

In this section we will try to find elements of explanation for the fact that our findings on the CAC 40 differ from Lie's results in the US. We will first discuss our methodology (the quality of our sample and our abnormal return model) which slightly differs from the one Lie used. Then we will try to find elements of the French regulation and customs on stock option grants that could have prevented companies to backdate stock option awards.

3.1. A critical review of our methodology

3.1.1. Our Sample:

Two features of our sample may be criticized. First, the relatively small size of our sample could limit the conclusions one can draw from it. Our sample consists of 435 plans granted by 35 companies from 1997 to 2006, of which 158 are classified as scheduled and 214 as unscheduled. This seems relatively small compared to the sample used by Lie in his study, which studied 5,977 stock option awards from 1992 through 2002, 1,668 of which are classified as unscheduled and 1,426 as scheduled. But we do not think it is a major obstacle as if backdating existed massively it should have appeared in our sample.

The main feature we see as a possible shortcoming is the *big cap* bias of our sample. The 35 companies we studied were all constituents of the CAC40, the French blue chip index, as at December 31, 2006. Therefore the average size of the company of our sample is likely to be greater than the average size of the company in the sample used by Lie. Why does this matter ? We see at least two reasons. First, the bigger a listed company the more it comes under the scrutiny of the French market regulator and of its auditors. As individual investors are more likely to invest in these large companies and as it is one of the mandates of the AMF to protect individual minority shareholders, CAC40 companies are likely to be more monitored by the AMF. This means that the risk of being caught increases which can deter managers from the temptation of backdating. There is also greater scrutiny from auditors. One reason could be that they fear to be associated with a stock option

related scandal that would mean legal risks and negative press coverage for them. These two factors, combined with the corporate scandals of the past years, have contributed to stricter corporate governance rules for large-cap companies. The second explanation to the unlikelihood of backdating in large companies is more organizational. We tend to think that the power and responsibilities are less centralized in the hands of a few top managers than in smaller businesses. Our talks with the legal departments of listed companies confirmed our intuition : given the number of people involved in a board of directors decision, an attempt to backdate is likely to be reported through *whistle blowing* procedures). Therefore, CAC40 companies make relatively poor candidates for backdating. However, they were the ones for which we could collect the most information and that is why we chose to study them. Further studies may be carried out on smaller companies where corporate governance standards may be not as high and where regulatory and media pressure would be weaker.

3.1.2. Our Abnormal Return Model

The model we chose has an undeniable advantage, the one of simplicity. We calculate abnormal returns as the excess return of the stock compared to the return of the market. The underlying assumption is that every company has a *beta* equal to one and that the CAPM model holds. This is a very simplifying assumption, as *beta* can vary a lot from a company to another and as the *beta* of a given company can vary overtime. What are the consequences of this assumption? The main one is that the value of abnormal returns are overestimated or underestimated compared to a traditional CAPM model. Let us take an example. If on a given day the stock and the market vary in the same direction, if the *beta* of the stock is superior to one, the absolute value of the abnormal return will be overestimated. However this is compensated in cases where the stock price and the market do not move in the same direction. Therefore, we cannot say if this assumption could really impact the overall meaning of our results, compared with a more traditional CAPM model. The model used by Lie is far more refined than ours. This may have an impact on our results and

redoing our analysis with a more elaborated model like the one used by Lie, the three factor model of Fama and French (1993), could be eventually the object of a next study.

3.2. The method of determination of the exercise price of a stock option plan

We believe that the method of determination of the exercise price for a stock option plan partly explains the absence of backdating for the studied companies. Whereas in the United States, the exercise price is usually set as the closing price of the stock on the day the stock options are granted, in France it is calculated on the basis of the 20-day average of the closing prices of the stock, with or without a discount which may go to 20%. However the discount is rarely below 5% for the three following reasons :

- (i) any part of the discount which is below 95% of the 20-day average of the stock price is taxed as a salary and not as capital gains at the time of the exercise ; this also means that the company accounts for it as a salary and this comes with various social taxes ;
- (ii) since 2002, companies must account for stock option plans as a cost in their P&L, at the fair value of the options, and granting an option in the money greatly increases the cost of them ;
- (iii) advisers and proxy services such as Proxinvest or ISS have raised awareness about the cost of such options and a shareholder is not likely to appreciate the granting of stock options in the money.

The 20-day average rule simply means that there is a greater lag in the effectiveness of backdating. Consider that from one day to another, a stock price drops 10%. Whereas in the United States the exercise price would consequently drop by 10% from one day to another, in France, the one-day return will only contribute for 5% of the 20-day average. In the American case, it is easy to imagine a board of directors delaying the decision because on a particular day there will have been a sharp increase in the stock price. One could argue that because in France there is a

larger lapse of time between the granting and the disclosure of the granting of a plan, backdating would still be possible : within two or three months of a chosen grant date, a company could look at the past 20-day average and choose the lowest point as date of the grant. This is possible ; however, in the first place, the longer the lapse of time between grant date and decision of grant (the *backdating period*), the larger the risks in terms of discovery of the backdating. Secondly, the 20-day average virtually eliminates *local backdating*, which could be defined as a backdating period of one to five dealing days. Lie's study proves that the cumulative abnormal pattern of backdating still exists after 2002, for companies who file the stock option grant within a period of 2 dealing days and for those who exceed the regulatory 2 dealing days disclosure requirement : *local backdating* becomes ineffective thanks to the 20-day average rule. It could be argued that the use of such a rule in the United States, in conjunction with the disclosure rule could hinder even more the use of backdating. In effect the 2-day disclosure rule is a heavy process for the regulator and the company reporting, and the fact that some companies file their disclosures late proves that it is sometimes not well respected.

We conducted a check on the use of the 20-day average and the data was consistent with the use of it, though the applied discount was not always consistent with the one announced :

Discount / premium	Count	% of total	of which Subs.	% of range	of which Acqu.	% of range	of which Unkn.	% of range
Undeterminable	70			16,09%				
Determinable	365			83,91%				
[-1%; +1%]	219	60,00%	145	66,21%	70	31,96%	4	1,83%
] +1%; +5%]	43	11,78%	30	69,77%	12	27,91%	1	2,33%
] +5%; +20%]	11	3,01%	5	45,45%	6	54,55%	0	0,00%
[-5%; -1%[	39	10,68%	23	58,97%	16	41,03%	0	0,00%
[-10%; -5%[	44	12,05%	22	50,00%	22	50,00%	0	0,00%
[-20%; -10%[	7	1,92%	5	71,43%	2	28,57%	0	0,00%

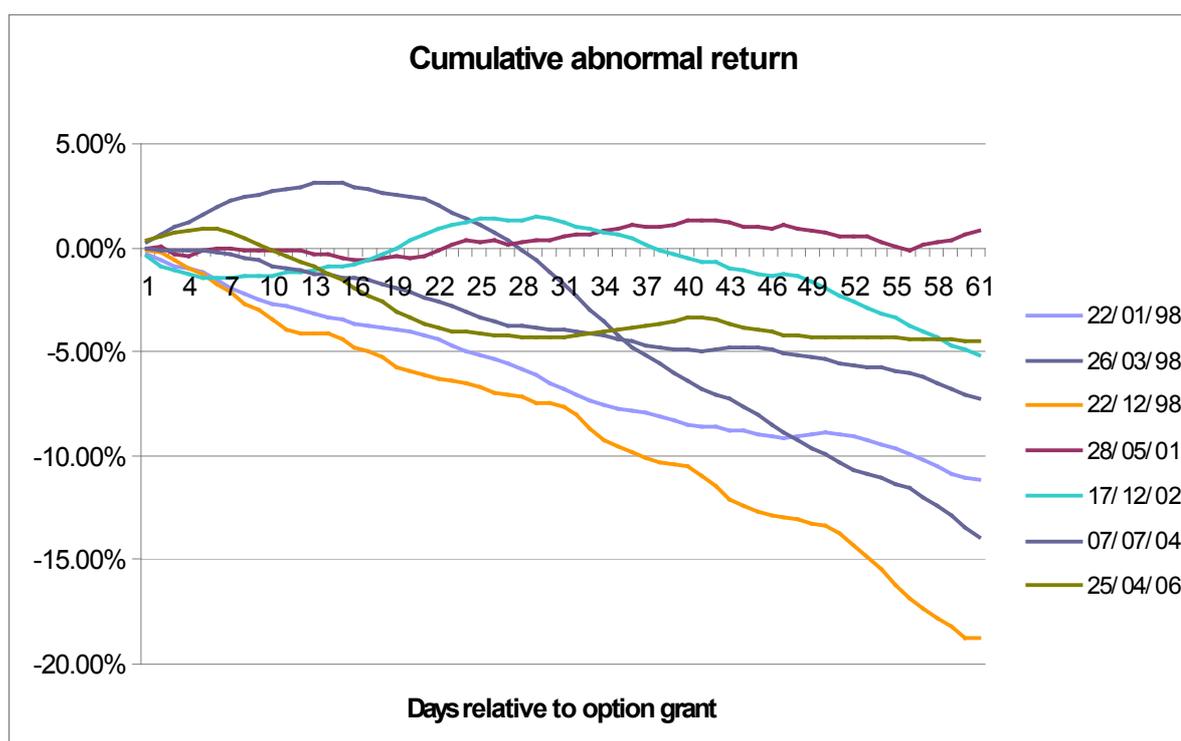
For 16% of the stock option plans, especially the ones from the late 1990s, the information was not sufficient to run a check on the use of the 20-day average

(probably because only the adjusted exercise price was given). For 84% of the plans, the exercise price is within a range of 80% to 120% of the 20-day average and in over 80% of those cases the applied premium or discount varies from 5% to -5%.

3.3. Corporate practices: a stock option plan is never granted to a CEO alone

In conducting our survey of the stock option plans granted by the CAC 40 companies, we realized that there are only seven instances out of the 435 stock option grants studied where the only beneficiary or beneficiaries are the executives of the company. And the study of the patterns of cumulative abnormal returns around the grant dates of the stock option plans does not show any trace of backdating :

Figure 5. Grant for which executives are the only beneficiaries



It is simply not customary in France to grant stock option plans only to executives. We suppose that this can be attributed to the French corporate cultural mentality around high compensations of chief executives, which are considered as

outrageous ; handing out the same kinds of compensations to others (though not the same quantity) would be seen as a fairer practice. We believe these views on executive compensation remain strongly embedded in France and should not be underestimated.

The following table gives an idea of the number and nature of beneficiaries of the sample of stock option awards used for this study :

Table 8 - number of beneficiaries		
Maximum	58 957	
Minimum	1	
Number of beneficiaries	Number of plans	% of total
1	18	4,14%
2 to 5	18	4,14%
6 to 20	24	5,52%
21 to 50	31	7,13%
51 to 100	24	5,52%
101 to 1,000	182	41,84%
over 1,000	96	22,07%
unknown	42	9,66%
Total	435	100,00%

Table 9 - share awarded to executives		
Share	Number of plans	% of total
none	113	25,98%
]0%; 20%]	145	33,33%
]20%; 40%]	82	18,85%
]40%; 60%]	13	2,99%
]60%; 80%]	7	1,61%
]80%; 100%[	5	1,15%
all	7	1,61%
unknown	63	14,48%
Total	435	100,00%

The fact that a stock option grant is awarded to a larger number of people naturally enables to prevent backdating as there would be a larger number of people involved in the receipt of stock options days, weeks or potentially months after the date chosen as the stock option grant date.

Furthermore, we could argue that it is hardly imaginable that executives backdating would want to take the risk for others.

Conclusion :

Through the study of 435 stock option plans awarded by 34 companies and over a period spanning the years 1997 to 2006, we have shown that there is no evidence of backdating in the choice of the granting date of stock option plans. However, we uncovered an interesting and significant pattern in the cumulative abnormal returns of unscheduled stock option plans that shows that these plans are opportunistically timed before an increase in the share price of the company. Though there might be some drawbacks in our model, this absence of backdating has three main explanations : our sample is one of large companies from the French blue chip index, where standards of corporate governance are definitely stronger than in small and medium companies (the latter made up the bulk of Lie's study); the 20-day average rule for the determination of the exercise price of the stock options contributes to making the use of backdating ineffective; and finally, the fact that stock options are very rarely granted to a CEO alone limits the risk/reward aspects of the backdating process.

We believe that the study of the granting of stock options in France could be pursued by further studies. First of all, it would be precious to widen the sample to include mid- and small-cap companies listed in France. This would provide a larger sample as well as a test sample to see if the cumulative abnormal returns patterns differ or not from that of this study. Furthermore, the cumulative abnormal returns model could be improved, either by including the *beta* or the three-factor Fama and French model. A third area of improvement would be in the interpretation of the positive cumulative abnormal returns following the grant of stock options : a study based on the voluntary disclosures policy of the companies before and after the grant date might yield interesting results.

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