



**HAL**  
open science

# Understanding Employer's Stock Holdings in the French Company Savings Plans Using the Literature on the American 401(k) plans

Nicolas Aubert

► **To cite this version:**

Nicolas Aubert. Understanding Employer's Stock Holdings in the French Company Savings Plans Using the Literature on the American 401(k) plans. *Gestion* 2000, 2006, 6 (6), pp.61-77. halshs-00188518v2

**HAL Id: halshs-00188518**

**<https://shs.hal.science/halshs-00188518v2>**

Submitted on 7 Feb 2010

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

# **Understanding Employer's Stock Holdings in the French Company Savings Plans Using the Literature on the American 401(k) plans**

**Nicolas AUBERT**

**Published in 2006 in *Gestion 2000*, vol. 6., p. 61-77.**

## **Résumé :**

La faillite de firmes américaines tristement célèbres dont les plans de retraite étaient largement investis en actions de l'entreprise a suscité un intérêt croissant pour la compréhension du choix des salariés d'investir dans des actions de leur entreprise.

Les plans de retraites américains 401(k) ainsi que les Plans d'Épargne Entreprise français ont la caractéristique commune de proposer aux salariés plusieurs catégories de fonds d'investissement. Certains de ces fonds sont investis dans des actions de l'entreprise.

L'objectif de cet article est de mieux comprendre les raisons qui conduisent les salariés à investir dans des actions de leur entreprise alors qu'un tel comportement semble violer les principales recommandations de la théorie moderne du portefeuille.

Afin de mieux comprendre ces choix, nous analysons la littérature américaine qui a mis en évidence leurs déterminants dans le cadre des plans de retraite 401(k). Ces recherches concluent que les choix des employés sont influencés par des déterminants rationnels et comportementaux : les abondements de l'entreprise dans les fonds d'actionnariat salarié, l'extrapolation excessive des performances passées de l'action de l'entreprise, la familiarité et la loyauté des salariés, des heuristiques de décisions et les caractéristiques des salariés et de leur entreprise.

## **Abstract :**

The collapse of sadly notorious American corporations whose retirement plans were primarily invested in company stocks has aroused a growing interest in understanding employees' investment decisions about company stock.

American 401(k) plans and the French Company Savings Plans have in common to give employees the choice to invest among different kinds of funds. Some of them are invested in diversified portfolios whereas others are invested in company stocks.

The goal of this paper is to understand why employees are willing to select funds invested in company stocks regardless of the basic recommendations of the portfolio choice theory.

To better understand these choices, we should review the American literature, which emphasised their determinants in the context of the 401(k) retirement plans. These researches conclude that employees' choices are led by several rational and behavioural determinants: Employers' matching contributions in company stocks; an excessive extrapolation of past returns on company stock; employees' familiarity with their company or their loyalty to it; decision heuristics leading employees' choice among the different funds available.

# Understanding Employer's Stock Holdings in the French Company Savings Plans Using the Literature on the American 401(k) plans

## Introduction

Financial participation in France is rooted in the idea of cooperation between capital and labour introduced by De Gaulle. Since the 1950s, French legislation has continuously developed financial participation in several ways. Gainsharing (*intéressement des salariés*) was introduced in 1959, the compulsory deferred profit-sharing scheme (*participation aux bénéfices*)<sup>1</sup> and the company savings plans (*Plan d'Epargne Entreprise*) in 1967. In France, employee ownership could hardly be considered separately from the company savings plan. Most of the employee ownership assets are actually held in these plans. These plans offer the employees the choice to invest between diversified funds and employee ownership funds. Public data shows that a major part of the company savings plans assets' consist of company stocks suggesting employees are willing to select them.

An important characteristic of employee ownership in France is that it is mainly spread among the large companies quoted in the CAC 40 index<sup>2</sup>. Like other indexes between 2000 and 2002, the CAC 40 experienced a massive decrease. According to a study in "Le Monde"<sup>3</sup> newspaper, the average employee-owner's portfolio experienced a proportional decrease being divided by two during the same period. Such an event highlighted the under-diversification problem of employee ownership. Indeed, investing massively in one's company stocks is in contradiction with the basic rules of diversification derived from the

---

<sup>1</sup> This compulsory profit-sharing scheme is a characteristic feature of the French participation system. All companies with a minimum workforce of over 100 (and since 1994 of over 50) are required to institute a deferred profit-sharing fund. The compulsory profit sharing bonuses are frozen five years.

<sup>2</sup> In 2003, the French Financial Market Authority (*AMF*) report mentioned that 40% of the FCPE assets are invested in the largest French companies.

<sup>3</sup> Le Monde, 4 octobre 2002.

modern portfolio theory. Such an investment decision is especially questionable when it is aimed at funding retirement pensions.

The American most popular company based retirement plan, the 401(k) Defined Contribution plan, allows employees to invest in their company stock. According to Mitchell and Utkus (2003) calculations, 11 million plan participants have allocations above 20 percent of their account balance in their company stock and 5 million have allocations above 60 percent of their account balance. A third of the assets in large 401(k) plans are invested in company stock (Benartzi (2001)). Using the capital asset pricing model, Meulbroek (2002) shows that diversification cost of company stock is about 42 percent of its value. Option pricing techniques allowed Ramaswamy (2003) to find that the cost of insuring the extra risk of company stock is prohibitively expensive.

This under-diversification phenomenon recently aroused the academic interest. These researches are of great interest for a better understanding of the French employees' behaviour regarding their company savings plan. It is worth noting that both the 401(k) plan and the French company savings plan are based upon the same principle, they are participant-managed. That is, participants are free to choose the way their savings are invested. As stated by Mitchell and Utkus (2004) such a principle is rooted in an implicit assumption about behaviour: "That the employee-citizen to whom the responsibility of choice has been handed is a well-informed economic agent who acts rationally to maximise its self-interest". It assumes people are able to make the best out of the information available to them. However, employees' decisions about their savings tend to challenge this underlying assumption. Empirical research about 401(k) plans shows that behavioural determinants also seem to be involved in the employees' decisions.

To comprehend employees' investment decisions about company stock, we will review the American literature, which emphasised their determinants in the context of the 401(k)

retirement plans. This literature concludes that employees' choices are led by several rational and behavioural determinants.

As the legal context can strongly influence employees investment decisions about their company stock, we briefly present the specificities of the French Company Savings Plan and underline the main differences with the American 401(k) plan.

Secondly, employers' matching contributions in company stock seem to be a key factor of employees' choice. They are a powerful incentive to buy company stock. Still, according to an "endorsement effect", employees tend to interpret them as implicit advice from their employer to buy company stock.

Thirdly, according to the "excessive extrapolation effect", when past returns on company stock are good enough, employees are more likely to choose company stock and conversely.

Fourthly, employees tend to invest more in company stock when they feel more familiar with their company or more loyal to it.

In section five, we present how plan design can influence employees leading them to use diversification heuristics to make their choice among the investment options available.

Finally, employee's and company's characteristics must be taken into account since they can greatly affect investments in company stock.

## **1. The specificities of the French Company Savings Plans**

French workers have different ways to buy stocks of the company for which they work. First, employees can invest in their company stocks simply by buying them directly from the financial market. This direct ownership does not give the same privileges of holding shares in a PEE<sup>4</sup> (*Plan Epargne Entreprise*). Therefore the most common way to become an employee-owner is to invest in a PEE. This company savings plan gives several investment options to the employees. The first available choice is to invest in a diversified fund (*FCPE dédié*). Another possibility is to choose a fund invested primarily in company stock. Amounts that

can be invested in these two different kinds of funds are the profit-sharing bonuses (both cash-based and compulsory deferred profit-sharing) or the voluntary contributions. Employers can match cash based bonuses and employees' voluntary investments (*abondement*). The annual amount invested by the employees in the PEE cannot exceed the quarter of their annual salary. According to a recent survey, 90% of the surveyed employees became owners via a PEE<sup>5</sup>. As mentioned earlier, a French employee has to choose between two different kinds of funds (*FCPE*). The first type is diversified funds (*FCPE multi-entreprises*) whose assets cannot be invested for more than 30% in company stock. The second one is considered as employee ownership since it is mainly invested in the company's equities (*FCPE d'actionnariat salarié*). More than 30% of its assets are invested in the company stock. French law requires that a PEE should propose at least one diversified fund to the employees in addition to the employee ownership one. Table 1 shows the composition of all the FCPEs' assets in 2003. These assets are mostly invested in company stock.

	Euros (billions)	Percent
<b>Quoted Employer's stock</b>	22,5	
Unquoted Employer's stock	2,5	
Employer's bond	2	
Other stocks	8,7	
Liquidity	6,8	
Other Mutual Funds	14,4	
TOTAL	56,92	100%

Table 1: FCPE assets, Source: *Rapport AMF 2004*.

Investing in a PEE is financially rewarding from the employee's point for at least two reasons. The first is that money placed in the PEE by the employee can be matched by an employer's contribution as mentioned earlier. By adding a contribution, a company can favour investment in one or several available funds. Furthermore, in the case of an employee stock offering, employees who buy stocks could take advantage of a maximum discount of 20% on the stock's price. There are therefore two different types of financial contribution that can give the employees an incentive to buy company stock. The counterpart is that money

<sup>4</sup> The decision of implementing a PEE is made only by the manager.

<sup>5</sup> Enquete « Actionnariat Salarié 2002 » realized by Hewitt Associates in partnership with Société Générale Asset Management.

invested in the company savings plans is frozen for five years. As pointed out by Poutsma (2001), French legislation offers a legal framework and generous tax advantages to a variety of financial participation forms. Concerning the amounts allocated to a company savings plan, if they are frozen for a minimum of 5 years, they are for the most part exempt from taxes. The employers' contributions to the plan are exempt from corporation or income taxes, taxes on wages and social charges, within a yearly limit per employee. For the employees, bonuses allocated to the company savings plan are exempt from income tax.

From a macroeconomic point of view, Poutsma (2001) states that the relationship between financial participation schemes and pension funding has not been investigated in France. The 2003 retirement law introduced a long-run retirement plan and prohibits it to be invested in company stock. From the point of our paper, a major difference between the PEE and the 401(k) plan is that the latter is aimed at funding American workers' retirement pensions. So far, the most popular company based savings plan in France remains the *PEE*. But, even if it is not aimed at funding retirement pensions, a recent survey<sup>6</sup> shows that 67% of the surveyed employee owners invested their company savings plan in company stock in order to fund their retirement pensions.

Another important difference between the two schemes we are interested in is that the 401(k) does not offer discounts on company stocks. In the context of an employee stock offering, the French Law does allow employers to gratify their employees with discounts on their stock price up to 20% worth. When setting up such financial operations, most French companies attribute the maximum discount combining them with matching contribution in company stock.

The two differences mentioned above are to be taken into account by the forthcoming empirical studies on employees investment behaviour.

In the next sections, we study the literature about company stock holdings in the 401(k) plans.

## **2. Matching contribution in company stock**

Company's matching contributions in their stocks appears to be a powerful incentive for the employees. In 2002, among the 401(k) plans in which employers were offering matching

---

<sup>6</sup> Enquête "Actionnariat Salarié 2002", Hewitt Associates et Société Générale Epargne Entreprise.

contributions in company stock, an average 53% of the total assets were invested in company stock. This percentage drops to 29% within the 401(k) plans offering company stock whatever the employer's matching contribution policy (Holden and VanDerhei (2001); VanDerhei (2002)).

Both the French and the American law make these contributions very attractive regardless of the kind of fund they are directed to. But the literature about employee ownership suggests that matching in company stock's benefits could be more than fiscal for the companies.

Incentive effects implied by employee ownership can result in an increased productivity. An important literature deals with these incentives effects. These researches assessed how employee ownership affects behavioural dependent variables such as motivation, implication, involvement, satisfaction, turnover and turnover intention. Klein (1987)) identified three perspectives to explain the effects of employee stock ownership on employees' behaviour. The first is the intrinsic satisfaction model. It states that employee ownership *per se* can increase employees' commitment to the organisation and its satisfaction. The second model mentioned by Klein (1987)) is the instrumental satisfaction model. It postulates that the employee owner satisfaction and commitment come from the participation in decision-making that is implied by employee stock ownership. Finally, the main hypothesis of the extrinsic satisfaction model is that employee stock ownership is motivating when it is financially rewarding (French (1987)). This latter model is consistent with the idea according to which employees would act rationally. Authors who tested the hypotheses of these three models have showed that the instrumental and the extrinsic models are the most meaningful. Examining the main research results about the combined effect of financial rewards and employee participation, Blasi, *et al.* (2003) conclude that the two elements should be paired to improve company's productivity. In the literature, performance is measured in terms of



productivity and profitability. Kruse (2002) states that empirical literature considers employee stock ownership as having either a positive or a null effect on performance. Indeed, few studies reported negative effect of employee stock ownership on corporate performance, which contradicts the free rider effect of collective incentives. According to the results of the “Actionnariat salarié 2002” survey, the main motivations that lead employee to invest in employee ownership are the financial contributions and the discounted stocks offered by the company. Another result is that the perception of a high expected stock value is another important motivation of the investment in company stock.

Academic researchers and financial practitioners are well aware that employee stock ownership is a powerful anti-takeover tool since it can reduce the probability of a takeover (Shivdasani (1993); Beatty (1995)). It is considered as a way to put a greater part of the voting rights in the hands of the management. The argument here is that collusion between management and employee owners could happen leading to management entrenchment. When an employee stock ownership plan is implemented, event studies report negative reaction of the financial market in line with the management entrenchment hypothesis (Chang (1990); Chang and Mayers (1992); Conte, *et al.* (1996)). As a takeover defence mechanism employee stock ownership could be more powerful than poison pill or golden parachutes (Chaplinsky and Niehaus (1994)). The latter are used less when an employee stock ownership plan is implemented (Park and Song (1995)). Market reactions also depend on other variables such as the board composition and the capital concentration. But the presence of employee stock ownership could also be interpreted as a way to increase the premium obtained by the shareholders of the target company (Stulz (1988); Dhillon and Ramirez (1994); Chaplinsky and Niehaus (1994)). Rauh (2004) finds additional support to these findings in the more specific context of company stock investment in the 401(k) plans.

Even if a financial incentive favouring employee ownership appears to be costly for the

firm in the first place, firms can also benefit greatly from offering them to the employees. Accordingly, employees' responses to such contributions could be to increase their investment in company stock. With regard to the participants' contributions to every sort of funds available in 401(k) plans – and not only to company stock -, Madrian and Shea (2001) found that they are significantly increased when the company offers matching contributions. Their results suggest that participant's contributions are increased once the minimal requested tenure to be eligible for matching contributions is reached. Hence, employees wait to be eligible to company's contribution to start investing in their 401(k). This conclusion applies whatever the kind of funds the matching contribution is directed to. But how employees react when matching contributions are offered in company stock?

Benartzi (2001) was the first to investigate employees' investment decision about company stock in the context of the 401(k) plans. He found that matching contribution in company stock could lead to an "endorsement effect" consisting in employees tending to interpret their employer's contributions as implicit investment advice. Benartzi (2001) findings are confirmed by Purcell (2003)'s ones. According to his research, 401(k) assets concentration in company stock is significantly correlated with matching contribution in company stock practices. Liang and Weisbenner (2002) findings are consistent with Benartzi's ones. According to them, employees put a larger share of their own contributions in company stock when the company's matches are offered in company stock. Moreover, a switch from allowing the employee to invest in the match, without restriction to requiring that the match be all in company stock, is not offset by the employee investing less of his own contributions in company stock.

In France, most of the advantages offered to the employees within the context of employee stock offerings are given through the company's saving plans. For instance, employees could benefit from discounted company stock if they buy company stock through their company's saving plan. This is one of the major differences with the 401(k) plan. Actually, employees

cannot be offered company stock at a discounted price. Discount offered on company stock price may also be considered as a powerful incentive to buy company stock. Some French listed companies can be extremely generous offering matching contributions in company stock. In the context of an employee offering, the French Law allow employers to gratify their employees by discounting their stock price up to 20% worth. When such financial operations happen, most companies attribute the maximum discount to their employees. According to the French Market Authority (*AMF*), 52 listed companies organised employee stock offerings in 2001, 52 in 2002, 47 in 2003 and 48 in 2004.

### **3. Excessive extrapolation of past returns**

Benartzi (2001) identified employees' decisions about their company stock with the "representativeness" bias highlighted by Tversky and Kahneman (1974). According to representativeness, Benartzi (2001) argues that employees tend to conclude that abnormally high past performance is representative of future performance, even if stock returns are largely unpredictable. Such a cognitive bias is consistent with the existence of an "excessive extrapolation" phenomenon. According to excessive extrapolation, employees whose firms experienced a good (bad) stock performance are more likely to invest a greater (lower) fraction of their 401(k) plan in company stock. His empirical results are consistent with an excessive extrapolation effect and are highly significant for a preceding period of ten years. For this latter period, Benartzi (2001) shows that employees whose firms experienced the best returns during the last ten years invested nearly 40% of their plans in company stock. Conversely, for the same period of time, employees whose firms experienced the worst results invested only 10% of their plan in company stock. Finally, he tested his excessive extrapolation hypothesis using a survey. The latter confirmed his result findings that employees consider past returns on company stock to be correlated with future returns.

Investigating 401(k) plans participants' new inflows and transfers, Huberman and Sengmuller (2004) found they can be predicted by company stock's past returns over a three-year period. Nevertheless, their results suggest that sensibility to past returns is asymmetrical. Actually, investors would react more strongly to positive and above S&P 500 returns than to negative returns. Surprisingly, both Benartzi (2001) and Huberman and Sengmuller (2004) found that employees' decisions are not affected by the standard deviation of their company stock. Choi, *et al.* (2004) used data about 401(k) plans participants within three large companies. Their findings are consistent with an excessive extrapolation effect for only one-year past returns period. Past returns appear to matter at every stage of employees' decisions: initial contributions, subsequent changes in contributions fraction and trading behaviour. They report that high returns lead participants to invest a greater part of their portfolio – both initial contributions and subsequent fractions of new inflows - in company stock. However, high returns have a converse effect on their trading behaviour. Actually, they induce employees to reallocate their portfolios away from company stock and toward other equities. According to them, 401(k) participants would follow the trend when making decisions about investment flows whereas they would be “contrarian” investors regarding their trading behaviour. This finding is consistent with a “profit-taking” behaviour.

#### **4. Employees' loyalty and familiarity**

Despite the obvious diversification gains investment in foreign securities could bring about, studies have shown that investors are reluctant to include them in their portfolio. The common explanation is that investors prefer securities with which they are more familiar. This familiarity bias was tested by Huberman (2001). Even if his research did not investigate

employees' decisions about company stock, he considered this diversification problem as potentially resulting from a familiarity bias. According to Driscoll, *et al.* (1995) findings, employees consider investing in their company stock to be less risky than investing in a diversified portfolio of American stocks or international stocks. Benartzi (2001) tested interaction effect between familiarity and excessive extrapolation. He finds that employees who feel more familiar with their company are more likely to extrapolate past returns excessively. Consistently with Driscoll, J., Sirull and Slotter (1995) results, he also shows that employees consider their employer's stock to be less likely to lose half of its value than overall market portfolio. Yet, Both Huberman and Sengmuller (2004) and Benartzi (2001) state that employees' decisions about company stock cannot be explained by their private information on its future returns. Their findings suggest that employees' decisions do not reflect an ability to predict company stock returns.

Cohen (2004) tested the effect of employees' loyalty on their decision about company stock. She assumed a more loyal employee would be more willing to buy her company stock. Using divisional employee status (conglomerate employee or stand-alone employee) as a loyalty proxy, she finds support of a loyalty based explanation of employees' holdings in company stock. In her study, stand alone employees are assumed to be more loyal than conglomerate ones. She also takes into account other variables such as excessive extrapolation, information based explanation and traditional risk diversification framework. Using items from the Mowday, *et al.* (1979) organisational commitment questionnaire as loyalty proxies, Benartzi (2001) found it has no effect on employees' decision to buy company stock.

As the French have limited experience with direct equity holding, they more likely tend to be subject to familiarity and loyalty bias and by investing in their employer stock. The French government initiated this trend. Indeed during the wave of privatizations in 1986 using

employee ownership as a way to develop individual equity holding. Furthermore, the French Law mentions that a part of every public offering could be reserved for the employees.

## **5. Plan design effect**

Several researches about discretionary 401(k) plans have put the emphasis on the fact that employees' choices are strongly influenced by a "framing effects" (Mitchell and Utkus (2004)). Thus, employees could select different investment options if the plan's menu design is modified. Such a phenomenon led Benartzi and Thaler (2002) to ask the following question: how much is the freedom of choice given to 401(k) participants worth? They conducted an experience in which plan participants were given the choice between holding their own portfolio, the portfolio of the median participant and the portfolio of the average participant. Surprisingly, eighty percent of the participants preferred the median portfolio to the one they constructed themselves. They conclude that participants do not really know their preferences and do not assess the mean-variance of their portfolio very well. This leads them to select sub-optimal asset allocation with regard to the modern portfolio theory. Benartzi & Thaler explore an explanation inspired by the "extremeness aversion" first emphasised by Simonson and Tversky (1992). They define this heuristic as the "tendency for consumers to prefer an option that does not appear to be at the extreme point of some relevant continuum" (p. 1607). This heuristic could be illustrated by the tendency to avoid the most expensive and the least expensive option in a menu. The results of their experience confirm the hypothesis according to which participants choose their portfolio allocation avoiding extreme options i.e. the most risky and the least risky ones.

In another research, Benartzi and Thaler (2001) underlined another diversification heuristic: "Naïve diversification or 1/N heuristic". Applying naïve diversification consists in

allocating an equal fraction  $1/N$  of a new contribution in each fund available in the plan. Their experiments show that, when participants are proposed two funds - whatever the securities' mix: bonds & stocks, stocks & balanced funds, bonds & balanced funds – their common investment strategy is to choose a 50/50 mix of the two funds offered. It is striking to observe that these choices are selected regardless to the funds' composition. For people given the choice between an equity fund and a bond fund, the average allocation to equities was 54 % and so on. According to these findings the design can strongly affect the composition of the participants' portfolio. Liang and Weisbenner (2002) investigated  $1/N$  heuristic and employees' decision about company stock. They found that naïve diversification could apply and can predict employees' allocation to company stock. They also emphasised that employees adapt their naïve diversification behaviour in response to an increase of the number of funds available five years after such an increase.

Further findings argue for a strong effect of the numbers of funds offered in the plans. According to Iyengar, *et al.* (2004), adding investment options to a plan would decrease participants' contributions to it. This “choice overload” would result in a 1,5% to 2% drop in participation rate for every ten funds added.

Other Benartzi and Thaler (1999) experiences results are consistent with Kahneman and Tversky (1984) conclusions according to which the way information is displayed can affect individuals' choices. According to their experiments, investors react differently according to whether the long-run results or short-run results are presented.

In France, the PEE must at least propose one fund in addition to employee ownership. Before the introduction of this reform, many French companies gave no choice but employee ownership to their employees. As a result, profit sharing bonuses could only be invested in company stock.

As mentioned earlier, there are two main differences between the 401(k) and the PEE. First, the PEE is not aimed at funding retirement pensions. Moreover, employees can get discounts on company stock price in the context of an employee stock offering. From the

investor point of view, investing five years or forty years is totally different. In the United States, a consequence of the longer freezing period is that investors are given a larger choice. According to Iyengar, *et al.* (2004) some American employees could select among more than fifty different funds. None of the PEEs gives such a large choice to French employees.

Another important difference between the French and the American schemes is that the former allows employee stock offering. Some of the largest French listed companies are offering shares to their employees on a regular basis, sometimes several times a year. During these operations, French firms can favour different goals. For instance, they can favour the participation rate by offering leveraged employee ownership funds. Consequently, employees can greatly increase their investment capacity by investing in these funds. They allow lower paid workers to participate in the employee stock offering more easily. These leveraged employee ownership funds are all the more attractive that they are sometimes downside protected. Another objective could be to maximise the total amount invested by the employees. To do so, French firms can schedule employee stock offering just after the payment of the profit sharing bonuses. Indeed, although compulsory profit sharing bonuses are not entitled to matching contribution, in the context of an employee stock offering employees can benefit from a discount. Because of these French specificities, employee ownership investment is highly attractive.

## **6. Employees' and companies characteristics**

Both employees' and companies' characteristics can affect employees' choices regarding their investment in company stock. For instance, from the modern portfolio theory point, individuals' portfolio could vary with the employees' age and risk aversion. On another hand, company stock's sensibility to the market index should be taken into account for a better understanding of employees' choices. At the pension funds level, Even and Macpherson (2003) results suggest that investment behaviour is consistent with predictions generated by models of optimal portfolio management. Investment in company stock is avoided when the non-diversification costs (assessed with respect to the Capital Asset Pricing



Model) are too high. Accordingly, we could observe that American ‘blue chips’ 401(k) plans assets are massively invested in company stock. They are usually supposed to be less risky than smaller firms.

Following the portfolio theory’s arguments, it is worth noting that, by investing in company stock, employees are considering not only their financial wealth but rather their overall wealth such as their estate property, their salary or their human capital. Poterba (2003) model suggests that employees’ risk aversion and all the components of their wealth should be taken into account to better understand their investment choices. Mitchell and Stephen P. Utkus (2002) argue that investing in company stock could be considered as rational if a company offers other retirement plans, such as Defined Benefit plans, to its workers. From this point, only the money invested in the 401(k) is at risk whereas the Defined Benefit plan is not. According to them, out of the 96 largest 401(k) plans, all but one also offers such a plan. Among the assets invested by employees in their company, the most important one is their human capital. The major risk associated with employee ownership is to lose both one’s job and savings. Specificity of human capital invested by an employee in his firm could play a role in his decision to buy company stock. The more specific the human capital is, the less likely is the employee to buy company stock. Another variable to consider is employees’ wage. Huberman, *et al.* (2004) et Agnew, *et al.* (2003) state that higher salary bring about higher contributions in the 401(k) plans. In the context of the France Telecom’s privatization, Degeorge, *et al.* (2004) found that employees with higher wages had participated more in the employee’s offering. As the employees’ specific human capital proxies they used the employee’s status (civil servants vs. non civil servants, former employees vs. current employees, retirees vs. current employees) and job tenure. As far as the specificity of human capital is concerned, their results suggest employees’ status did not matter in the employees’ decision to participate in the offering. Regarding job tenure, Degeorge *et al.* found it was

significantly related to the decision to buy company stock. They also measured how a proxy of employees' wealth (zip code) could affect employees' decision to participate and how much to invest in France Telecom stock. This variable appeared to be significantly correlated with the decision to buy company stock. Thus employees with higher wealth would have been more likely to buy company stock. To our knowledge, Degeorge, *et al.* (2004) is the only study aimed at understanding employee's decision about their company stock in a French context. Barber and Odean (2001) findings show that investment behaviour could differ according to the gender. Huberman, Iyengar and Jiang (2004) and Agnew, Pierluigi and Sunden (2003) also found a gender effect in the employees' decisions about their 401(k) plans. Women participation's rate tends to be higher than men's one, they invest more in liquidity than stocks and the number of their transactions is lower. Another variable closely related to gender is marital status. Indeed, one can argue that the risk to invest in company stock is decreased if an employee's partner gets revenue elsewhere. This could result in a diversification effect. Degeorge, Jenter, Moel and Tufano (2004) report an effect of the gender on the probability to participate. Women participated more than men in the France Telecom employee offering. The authors mention that marital status caused this difference.

Degeorge *et al.* (2004) put the emphasis on the France Telecom's marketing effort before the initial public offering. As for them, a key part of this marketing campaign was aimed at the employees. Many different benefits were offered to the employees: free or discounted stocks, low-rate loans. This underlines the importance of the company's communication policy toward its employees. It can be assumed that such communication policies provide a good incentive for employees to buy company stock. As mentioned earlier, the French Law requires that at least one investment option is given to employees in addition to employee ownership. This rule was aimed at giving diversification opportunities to employees but some French companies are still focusing their communication policy on

employee ownership. Such a behaviour strongly affect employees' choices regarding their investment. More specifically, during an employee stock offering, a firm can use several means of communication. For instance, internal communication can be done via intranet, posters, leaflets or information meetings. Communication campaigns are often outsourced to HRM consultants who answer employees' questions directly in the workplace or via a dedicated hotline. Sometimes, they even help employees to fill up their subscription form.

A similar argument about companies' marketing effort would be that communication and advertising campaign aimed not only at the employees but at company's customers could also affect employees' decision about company stock. Assuming that such advertising expenses make employees proud of their company, Cohen (2004) reported that these expenses are positively correlated with employees' holdings in company stock.

## **Conclusion**

As participant-directed defined contribution plans are becoming more and more adopted in the private-sector retirement system throughout the world, understanding what are the determinants of participants' investment decision is of great interest. Researches dealing with this topic involve several disciplines of management and, more broadly, of human sciences. In particular, the empirical literature about employees' decisions regarding their employer stock suggests that forthcoming empirical studies should supplement the rational assumptions with behavioural variables. More broadly, investors' behaviour is a good ground to assess their explanatory power empirically. Such researches could lead to enhance plans' design in order to increase participants' welfare. A good example of that kind of research is Benartzi & Thaler (2004). Taking into account empirical conclusions about 401(k)

participants' savings behaviour, they designed a new sort of plan: "Save More Tomorrow". Improving plan design in the best interest of the participants implies acknowledging that they are barely able to make decisions consistent with modern portfolio theory. This is consistent with Sunstein & Thaler's (2003) "libertarian paternalism" they define as follows:

"Libertarian paternalism is a philosophy that advocates designing institutions that help people make better decisions but do not impinge on their freedom to choose."

Regarding the employees' stock holdings in company stock, it seems paradoxical to notice that they have greatly contributed to the success of the 401(k) plans and the French Company Savings plans so far. Employers can take advantage of employee ownership, which induces them to contribute to the plans. Recently, the French government introduced a new company based retirement plan: the PERCO (Plan d'Epargne de Retraite Collectif). This plan replaced the PPESV (Plan Partenarial d'Epargne Salariale Volontaire) prohibiting investments in company stock. This restriction will solve the diversification problem but employers will probably be less willing to contribute to these plans than to the Company Savings Plans or to the former PPESV. Eventually, one should consider that the cause of the 401(k) plans and the French CSP drawbacks is also the cause of their success. Although it implies increased risk for the employees, the possibility of giving matching contributions in their own stock is a powerful way to get companies involved in the funding of retirement pensions. At the company level, employee ownership is also likely to have effects on employees' attitudes at work and corporate governance. But this effects are both closely related to returns on company stock.

Taking into account the American conclusions is of great interest to better understand French workers investment decisions. To do so, the institutional specificities should not be

underestimated. Particularly, the French Company Savings Plans are not aimed at funding retirement pensions and they are designed to allow employee stock offerings. In spite of these differences, the literature presented above could be considered as a theoretical framework by the forthcoming empirical researches.

## References

- Agnew, J., Pierluigi, B. and Sunden, A. E., 2003, "Portfolio choice and trading in a large 401(k) plan", *American Economic Review*, 93, 1, 193-215.
- Barber, B. and Odean, T., 2001, "Boys will be boys: gender, overconfidence, and common stock investment", *Quarterly Journal of Economics*, 116, 261-292.
- Beatty, A., 1995, "The cash flow and informational effects of employee stock ownership plans", *Journal of Financial Economics*, 38, 2, 211-240.
- Benartzi, S., 2001, "Excessive extrapolation and the allocation of 401(k) accounts to company stock", *The Journal of Finance*, 56, 5, 1747-1764.
- Benartzi, S. and Thaler, R. H., 1999, "Risk aversion or myopia? choices in repeated gambles and retirement investments", *Management Science*, 45, 3, 364-381.
- Benartzi, S. and Thaler, R. H., 2001, "Naive diversification strategies in retirement saving plans", *American Economic Review*, 91, 1, 79-98.
- Benartzi, S. and Thaler, R. H., 2002, "How Much Is Investor Autonomy Worth?" *The Journal of Finance*, 57, 4, 1593-1616.
- Chang, S., 1990, "Employee stock ownership plans and shareholder wealth: an empirical investigation", *Financial Management*, 19, 1, 48-58.
- Chang, S. and Mayers, D., 1992, "Managerial vote ownership and shareholder wealth: evidence from employee stock ownership plans", *Journal of Financial Economics*, 32, 1, 103-131.
- Chaplinsky, S. and Niehaus, G., 1994, "The role of ESOPs in takeover contests", *Journal of Finance*, 49, 4, 1451-1470.
- Choi, J. J., Laibson, D., Madrian, B. C. and Metrick, A., 2004, "Employees' Investment Decisions About Company Stock", *Pension Design Structure: New lessons from behavioral finance*, O. S. a. U. Mitchell, Stephen P., Oxford University Press, 121-136.
- Cohen, L., 2004, "Loyalty based portfolio choice", *Working Paper, Graduate School of Business, University of Chicago*,
- Conte, M. A., Blasi, J., Kruse, D. and Jampani, R., 1996, "Financial returns of public ESOP companies: investor effects vs. manager effects", *Financial Analysts Journal*, 52, 4, 51-61.
- DeGeorge, F., Jenter, D., Moel, A. and Tufano, P., 2004, "Selling Shares to Reluctant employees: France Telecom's Experience", *Journal of Financial Economics*, 71, 169-202.
- Dhillon, U. S. and Ramirez, G. G., 1994, "Employee stock ownership and corporate control: an empirical study", *Journal of Banking & Finance*, 18, 1, 9-26.
- Driscoll, K., J., M., Sirull, M. and Slotter, P., 1995, "1995 Gallup Survey of Defined Contribution Plan Participants", *John Hancock Financial Services*,
- French, J. L., 1987, "Employee perspectives on stock ownership: financial investment or mechanism of control?" *Academy of Management Review*, 12, 3, 427-435.
- Holden, S. and VanDerhei, J., 2001, "401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2000", *ICI Perspective*, 7, 5,

- Huberman, G., 2001, "Familiarity breeds investment", *The Review of Financial Studies*, 14, 3, 659-680.
- Huberman, G., Iyengar, S. S. and Jiang, W., 2004, "Defined contribution pension plans: determinants of participation and contributions rates", *Columbia University Working paper*,
- Huberman, G. and Sengmuller, P., 8: 403-443., 2004, "Performance and Employer Stock in 401(k) Plans," *Review of Finance*, 8, 403-443.
- Iyengar, S. S., Huberman, G. and Wei, J., 2004, "How much choice is too much? Contributions to 401(k) retirement plans", *Pension Design Structure: New lessons from behavioral finance*, O. S. a. U. Mitchell, Stephen P., Oxford University Press, 83-95.
- Kahneman, D. and Tversky, A., 1984, "Choices, Values and Frames", *American Psychologist*, 39, 341-350.
- Klein, K. J., 1987, "Employee stock ownership and employee attitudes: a test of three models", *Journal of Applied Psychology*, 72, 2, 319-332.
- Kruse, D., 2002, "Research evidence on the prevalence and effects of employee ownership", *Journal of Employee Ownership Law and Finance*, 14, 4, 65-90.
- Madrian, B. C. and Shea, D. F., 2001, "The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior", *Quarterly Journal of Economics*, 116, 1, 1149-1525.
- Mitchell, O. S. and Utkus, S. P., 2003, "Company Stock and Retirement Plan Diversification", *The Pension Challenge: Risk Transfers and Retirement Income Security*, O. S. M. a. K. Smetters, Oxford University Press, 33-70.
- Mitchell, O. S. and Utkus, S. P., 2004, "Lessons from behavioral finance for retirement plan design", *Pension design and structure: New lessons from behavioral finance*, O. S. a. U. Mitchell, Stephen P., Oxford university press, 4-41.
- Mowday, R. T., Steers, R. M. and Porter, L. M., 1979, "The measurement of organizational commitment", *Journal of Vocational Behavior*, 14, 224-247.
- Park, S. and Song, M. H., 1995, "Employee stock ownership plans, firm performance, and monitoring by outside blockholders", *Financial Management*, 24, 4, 52-65.
- Ramaswamy, K., 2003, "Corporate Stock and Pension Plan Diversification", *The pension challenge: Risk transfers and retirement income security*, O. M. a. K. Smetters, University of Pennsylvania Press,
- Rauh, J., 2004, "Own Company Stock in Defined Contribution Pension Plans: A Takeover Defense?" *Graduate School of Business, University of Chicago*,
- Shivdasani, A., 1993, "Board composition, ownership structure, and hostile takeovers", *Journal*, 16, 167-198.
- Simonson, I. and Tversky, A., 1992, "Choice in context: Tradeoff contrast and extremeness aversion", *Journal of Marketing Research*, 29, 281-285.
- Stulz, R., 1988, "Managerial control of voting rights: Financing policies and the market for corporate control", *Journal of Financial Economics*, 20, 25-54.
- Tversky, A. and Kahneman, D., 1974, "Judgment under uncertainty: Heuristics and biases", *Science*, 185, 1124-1131.