Employees Equity Issue and Asymmetric Information: Evidence from France[1]
Augmentations de capital réservées aux salariés et Asymétrie d'information : Cas de la France

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Abstract: This study explores determinants of employees' equity issues of French companies. Based on the predictions of the pecking order theory, we test whether asymmetric information influences a company's decision to issue new shares reserved for employees. The main contribution of this paper is to provide evidence on the factors that matter in employees' equity issue decision on French context. We develop a *logit* model on a sample of 110 non financial companies that belong to SBF250 index over the period 1998-2007. Our results show that when asymmetric information is measured by the number of financial analysts and the intangibility of assets, there is a positive effect on the decision to issue equity to employees. This result is consistent with previous studies. Furthermore, our research confirms that the level of financing deficit has a positive influence on the employees' equity issues decision. This finding allows to confirm the predictions of pecking order theory.

Key words: employees' equity issues, pecking order theory, financing deficit.

Résumé **:** L'objectif de cet article est d'identifier les déterminants de la décision des entreprises de recourir à une augmentation de capital réservée aux salariés. En se basant sur les prédictions de la théorie du financement hiérarchique, nous vérifions si le niveau d'asymétrie d'information a une influence sur la décision d'émettre des actions réservées aux salariés. A partir d'un échantillon de 110 entreprises non financières françaises appartenant au SBF250 de 1998 à 2007, un modèle *logit* est développé afin d'examiner les facteurs qui influencent cette décision de financement. Les résultats montrent qu'il y a un effet positif statistiquement significatif de l'asymétrie d'information sur la décision d'émettre des actions réservées aux salariés, lorsque cette asymétrie d'information est mesurée par le nombre d'analystes financiers et l'intangibilité de l'actif. De même, le niveau du déficit de financement a un effet positif sur la décision de mettre en place une augmentation de capital réservée aux salariés. Les résultats obtenus confirment ainsi les prédictions de la théorie du financement hiérarchique.

Mots clés : augmentation de capital réservée aux salariés, théorie du financement hiérarchique, asymétrie d'information, déficit de financement

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Introduction

Employee ownership has been the subject of lot of studies focusing on the link between employees' attitudes (Rousseau and Shperling, 2003; Caramelli and Briole, 2007), firm performance (Pugh et al., 2000; Hollandts and Guedri, 2008) and firm governance (Ginglinger et al., 2011; Hollandts and Aubert, 2011). This interest of researchers can be explained by the international development of the employee ownership. In 2009, in the United States, the *National Center of Employee Ownership* counted one third of the active population (25 to 30 millions) as employee shareholders. In 2008, the *European Federation of Employee Share Ownership* listed, on average, over 3 millions employee shareholders in Great Britain compared with 2.5 millions in France, representing nearly 8% of the active population. Although many studies have been written on employee ownership, little research focuses on the mechanisms that allow employee ownership to take place, among which employees equity issues are included. According to the *Financial Markets Authority* (AMF), an employee equity issue is an issue of new stocks to which only employees can take out. Four main reasons justify an interest in studying this mechanism.

Firstly, employees' equity issue has increased significantly in France. An observation of equity issues by companies between 1998 and 2008 shows that employees' equity issues are the third most important form of equity issues in France (Table 1). Next, employee equity issue is reserved to a category of shareholders, minority shareholders in most cases, who are linked by an employment contract to the company in which they hold stock. Moreover, French law offers a specific context for the development of employees' equity issues dealing with their link to employee savings plans. Because of this link, both employees and companies benefit from the social and fiscal advantages that have been defined by the lawmakers for employee stock ownership plans. In addition to those elements, one of the reasons to be interested in employees' equity issues is linked to the weak interest shown by the finance research in this mechanism. In France, the only study written on employee equity issues is that of Aubert and Rapp (2008). These authors have investigated the reasons for which employees are willing to invest in company stocks.

Taking into account the specificities of employees' equity issues, this study attempts to contribute to the literature on employee ownership by providing evidence on the factors that explain employees'equity issues decision on the French market.

Table 1: *Forms of equity issues in France from 1998 to 2008*

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Initial Public Offering	5 076,63	5 531,47	11 583,78	2 938,69	3 204,49	4 154,90	3 928,40	4 882,31	17 243,52	11 088,40	16 200
Reserved for employees	1 060,29	1 158,48	3 681,21	2 416,68	3 833,83	1 735,00	736,30	2 050,90	2 929,04	3 700,50	5 600
Other reserved	1 646,66	461,27	1 516,64	75,02	4 134,76	49	2 850,40	665,79	2 263,01	1 708,90	3 500
Payment of stock dividends	427,19	256,33	339,63	316	972,66	339,70	520	802,38	299,13	1 975	1 000
Exercise of warrants	2 116,75	319,90	745	1 979,94	1 965,41	15 631,80	1 274,60	3 689,89	1 077,97	2 112,40	1 100
Exercise of options	1 318,06	1 613,96	3 532,92	1 309,60	921,09	930,40	1 281,60	1 986,21	3 258,81	10 027,10	–
Total	11 645,58	9 341,41	21 399,18	9 035,93	15 032,24	22 840,80	10 591,30	14 077,48	27 071,48	30 612,30	27 400

Note: the sums are in millions of euros. The amount for options exercised in 2008 was associated with the amount of employees' equity issues. Source: Financial Markets Authority.

Research on corporate finance, based on the pecking order theory, integrates the concept of information asymmetry between internal and external investors to test the hierarchy of financing modes proposed by Myers (1984), Myers and Majluf (1984). These authors show that firms finance themselves first by internal financing, later by debt, and finally through an equity issue. Equity issue constitutes a last resort solution because this form of financing involves important asymmetric information problems. Then, asymmetric information problems drive the capital structure of firms. While number of studies (Lemmon and Zender, 2010; Molay, 2005; Shyam-Sunder and Myers, 1999) largely confirm this hierarchy, others reject it (De Jong et al., 2010; Gatchev et al., 2009). Fama and French (2005) show that equity issues do not constitute a last resort solution and companies use the forms of equity issues that are less subject to asymmetric information problems, such as employee ownership. The finding is consistent with our observation in France for the 1998-2008 period using the data that are included in Table 1. In fact, because employees equity issues are reserved to a category of investors that is linked to the company by an employment contract, the employees are supposed to know more than the market about their firm's value. As a consequence; employee equity issues constitute a financing choice that allows the main hypothesis of the pecking order theory, i.e., information asymmetry, to be tested. Using indicators found in the literature (Bessler et al., 2010; Bharat et al., 2009) to test the impact of information asymmetry on financing decisions, this study attempts to verify whether employees' equity decision is driven by the degree of information asymmetry. Does information asymmetry influence the decision to issue equity to employees? Can one therefore compare an employees' equity issue to a classical equity issue?

This paper is organized as follows. The following section (1.) presents the results of some principal empirical studies that have investigated pecking order theory predictions, and develops hypotheses. The next section (2.) presents the methodology of research and the data. The empirical analysis and the discussion of the results are presented in a final section (3.).

1. Theory
1.1. Empirical studies

The pecking order theory[2] is based on the existence of information asymmetry between internal and external investors. If a new project needs to be financed, managers will

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[2] These are the models of Myers (1984) and Myers and Majluf (1984). Other models exist, such as those of Leary and Roberts (2010), Lemmon and Zender (2010), and Narayanan (1988).

only issue new stock if the firm is overvalued. Otherwise, they will refuse to issue stock to avoid creating a transfer of value from the internal investors to the *outsiders*. Aware of the fact that companies will only issue stock in the case of overvaluation, and when an equity issue is announced, the market penalizes the equity issue with a drop in the value of the firms' stock. As a result, the pecking order theory predicts that companies should issue stock at a last resort after internal financing, bank debt and public debt.

Several studies have tested the predictions of the models of Myers (1984) and Myers and Majluf (1984). Shyam-Sunder and Myers (1999) test the hypothesis of pecking order theory and confirm that it offers a good approximation to firms' financing behavior. Chirinko and Singha (2000) show that Shyam-Sunder and Myers's (1999) test, does not have the power to provide information on the order of financing. Fama and French (2002) and Frank and Goyal (2003) find that the pecking order theory is a good descriptor of the financing decisions of large companies. Lemmon and Zender (2010) confirm the studies of Fama and French (2002) and Frank and Goyal (2003) by introducing the concept of debt capacity. In a French context, Molay (2005) confirm also the predictions of the pecking order theory.

Although previous studies generally support the pecking order theory, some studies do not find support for it. On a sample of 150 non-financial Dutch firms between 1984 and 1997, de Haan and Hinloopen (2003) show that if internal financing is preferred to external financing, when external financing is considered necessary, the companies tend to issue stocks, rather than debt. Fama and French (2005) show, at the opposite to the predictions of the pecking order theory, that the majority of companies issue and repurchase shares each year. The companies have various means to increase capital: mergers, convertible bonds, stock options, and other various employee stock ownership plans. Furthermore, this financing choice does not appear to be made at a last resort. Halov and Heider (2005) state that the hierarchical financing proposed by Myers and Majluf (1984) is only a particular case of firms' financing behavior. According to Gaud et al. (2007), pecking order theory offers a good descriptor of firms' financing behavior in Europe. For Seifert and Gonenc (2008), financing deficit is mainly covered by equity issues, which is a result in opposition to the predictions of the pecking order theory. Gatchev et al. (2009) also confirm that equity issues are not a last resort financing source.

Following Fama and French (2005), recent studies (Leary and Roberts, 2010; Bharath et al., 2009) have tested information asymmetry as determinant of capital structure. Chang et

al. (2006) found that firms followed by the largest number of analysts issue more equity. These firms are supposed to have less information asymmetry problems. Chang et al. (2006) conclude that information asymmetry is a major determinant in the financing choices. Dittmar and Thakor (2007) show the importance of information asymmetry in explaining firms' decisions when they issue equity. This major role of information asymmetry in firms' financing decisions is also confirmed by Gomes and Phillips (2007). These authors confirm the predictions of pecking order theory, showing that firms having a strong degree of information asymmetry are those that issue at last resort equity. Bharath et al. (2009) find that the companies that are characterized by strong information asymmetry finance their deficit with debt in contrast to the companies characterized by weak information asymmetry. For Bessler et al. (2010), information asymmetry is important in explaining equity issues. This conclusion is confirmed by Autore and Kovacs (2010) who show that firms issue stock when the *insiders* have a weak informational advantage over the *outsiders* because this issue can be costly in the case of a strong information asymmetry (significant costs of adverse selection).

1.2. Hypothesis

Previous literature that has been conducted on the core assumption of the pecking order theory concludes that information asymmetry is a major determinant of financing decisions. The intensity of information asymmetry that exists between a company and its employees is considered to be lower than that between the firm and external investors (Fama and French, 2005). This is justified essentially through the specificity of the status of employee shareholder (linked by an employment contract to the firm of which he is a shareholder – and, more importantly, having proximity to the firm). Then, firms would be led to issue equity for their employees because the costs of adverse selection for this financing choice should be lower. We thus expect that the probability that a firm use an employee's equity issue should be higher when information asymmetry is low. From this point of view, in this article, we evaluate the principal assumption of pecking order theory – i.e., information asymmetry as a determinant of firms' employees equity issues. As Fama and French (2005) do, we perform a test to verify if information asymmetry is an important determinant of firms' employees equity issues decisions. We expect firms to use employees' equity issues when the intensity of information asymmetry is low. That is the specific question we address in this paper. For that purpose, we consider three information asymmetry proxies: investment opportunities, number of analysts, intangibility of assets.

Investment opportunities: Firms with important investment opportunities can face more severe problems from information asymmetry than the firms with lower investment opportunities. In fact, these firms become difficult for potential investors to evaluate. Myers (1977) and Franck and Goyal (2003) show a negative relation between investment opportunities and debt. We estimate that the relation would also be negative with the decision to use employees' equity issues. If the companies facing significant investment opportunities increase the degree of information asymmetry with investors, they will force the employees to bear a more significant risk (double risk, due to the investment in both human and financial capital) (Pendleton, 2010). One should expect that these employees would not be ready to accept the additional risk if the value of their company is based on the actual value of its future projects. The existence of significant investment opportunities would thus increase information asymmetry between the company and its employees. Higher values of investment opportunities are associated with using less employees'equity issues.

Hypothesis 1 (H1): the degree of investment opportunities has a negative effect on the decision to use employees' equity issue.

Number of financial analysts: According to Chang et al. (2006), coverage by financial analysts affects firms' decision to use employees' equity issue. A broader coverage would lead to a reduction in information asymmetry. In trying to detect the companies that are under/overvalued, analysts produce predictions and formulate recommendations (for the purchase or sale of shares). Because they allow for a reduction in information asymmetry, Chang et al. (2006) emphasize that financial analysts help to reduce the financial constraints of a company, allowing firms to more easily raise capital. From this fact, we expect that the coverage of firms by financial analysts is positively associated with the decision to issue shares to employees. Employee shareholders are supposed to bear a higher risk than other investors; we consider that coverage by financial analysts is an estimation of the degree of risk that employees bear in investing in shares of their company.

Hypothesis 2 (H2): the coverage by financial analysts has a positive effect on the decision to issue equity to employees.

Finally, we use the **intangibility of the assets** to measure the level of information asymmetry. Tsai (2005) emphasizes that the optimal choice of financing for firms that are intangible-asset intensive is an equity issue. This result is explained by the fact that the firms with a strong value in intangible assets tend to be more risky, and the information asymmetry

with investors is more elevated. Gatchev et al. (2009) found that an equity issue is the first source of financing in the case of investments in intangible assets, such as research and development expenses. These various investments in intangible assets include human capital (e.g., knowledge and competencies possessed by employees). We consider that the companies will seek to share the risk that is linked to these investments with their employees. We assume that the companies characterized by a high level of intangible assets should thus allow employees to participate in capital more frequently.

Hypothesis 3 (H3): the degree of intangibility of the firms' assets has a positive effect on the decision to use employees' equity issues.

According to the predictions of the pecking order theory, external financing is only required when internal do not cover its financing deficit. As a consequence, the relation between information asymmetry and the financing decisions depends on the level of the financing deficit. In the case of a significant financing deficit, this situation would increase the risk that investors bear, which increases the level of information asymmetry. Bessler et al. (2010), as well as Molay (2007), show that the financing deficit and the degree of information asymmetry affect the financing decisions of firms. If financing decisions are considered as a function of the level of the financing deficit, the size of this deficit increases the information asymmetry, which determines, in turn, access to the various sources of financing. These different relations between financing deficit, information asymmetry, and financing choices suggest that the effect of information asymmetry on the firms' decision to issue shares to employees will depend of the level of the financing deficit. Therefore, we assume that in the case of a significant financing deficit, the information asymmetry will be higher, which will negatively affect the probability to issue shares to employees. At the opposite, if there is little or no financing deficit, the information asymmetry will have little effect on the firms' financing decision. This conclusion leads us to test the mediation role of the financing deficit, i.e. a mechanism by which the independent variable (information asymmetry) influences the dependent variable (decision to issue equity to employees).

Hypothesis 4 (H4): the financing deficit has a mediation relation between information asymmetry and firms' decision to issue equity to employees.

2. **Data**
2.1. **Sample**

We explore the determinants of the decision of firms to issue shares to employees. Specifically, we test if this decision is affected by the degree of information asymmetry. The initial sample consists of all the publicly traded French companies listed on the SBF250 index, which is the more representative index of French companies. Following standard practice, we excluded financial firms and regulated utilities. Also excluded are firms that were not subject to a permanent quotation over our research period from 1998 to 2007, firms for which there are a number of missing data that will carry out our empirical test under satisfactory conditions. Our remaining sample consists of 110 firms from 1998 to 2007. Financial data were collected from *Thomson Reuters* and *Capital IQ*. The others data were collected with AMF (Autorité des Marchés Financiers – French Market Authority) and from firms' annual reports. A quick analysis following the ICB classification shows that our sample is made up of industrial companies (30%) followed by companies specializing in consumer goods (20%), companies in the technology sector (17%) and companies specializing in consumer services (15%).

2.2. Dependent and independent variables

In this paper, we expect the decision to issue equity to employees to be related to information asymmetry. We also expect that financing deficit plays a mediation role on the relation between dependent variable and proxies of information asymmetry.

Dependent variable (*DEEI*): This variable is binary with a value of 1 in the case of a decision by the board of directors to use employees' equity issue and 0 otherwise. Among the 110 firms in the sample, 45% had issued at least once equity to employees during the period of the study (Table 2). For the firms that decided to use an employee equity issue, 36% maintained their decision for the entire period of the study. This statement suggests that it is more common for firms of the sample not having employees' equity issued.

Table 2 : Descriptive statistics of the dependent variable

The table presents descriptive statistics of the dependent variable (*DEEI*). The dependent variable is equal to one for an employee equity issue and 0 otherwise.

	Overall		*Between*		*Within*
DEEI	Frequency	Percentage	Frequency	Percentage	Percentage
No Décision (0)	910	84,03	105	95,45	87,85
Décision (1)	173	15,97	49	44,55	36,24
Total	1 083	100	154	140,00	71,43
			(n=110)		

Independent variables: The level of investment opportunities (*OPINV*) is measured by the ratio of net investments divided by the total assets. As Chang et al. (2006), the coverage by financial analysts was measured by the number of analysts (*ANAFI*). The intangible of assets (*INTANG*) were obtained by subtracting the tangible assets from the total assets (Lemmon and Zender, 2010; Autore and Kovacs, 2010). Each of the values was subsequently divided by the total assets to control firms' size effects. As Table 3 indicates, with the exception of the investment opportunities variable (*OPINV*), the differences between firms are more important than the variation within companies. The average number of financial analysts was 15, and on average, 18% of firms' assets are intangible. Firms of the sample seem to rely more on tangible assets.

For the financing deficit (*DEF*), we adopted the definition of Shyam-Sunder and Myers (1999) and Frank and Goyal (2003)[3] with some changes. **1**) We take into account the change in working capital (*ΔBFR*) according to the French context. **2**) We take into account the influence of initial cash, *t* (*TRES*)[4] on the financing deficit. If the initial cash flow is positive, it represents a potential source of financing and reduces the financing deficit. At the opposite, negative cash flow increases this deficit. **3**) We do not take into account the net issues (*ΔE*) of equity. We retain, on one side, the amount for repurchases of shares (*RA*) and for equity issues (*NE*). Due to the unavailability of data, we maintain the net debt (*ΔD*). The deficit of financing is subsequently determined as follows:

$$\mathbf{DEF = DIV_t + I_t + \Delta BFR_t - CAF_t \pm TRES_t + RA_t = \Delta D_t + NE_t}$$

Where *DIV$_t$*: dividends paid in *t*. *I$_t$*: net investments in *t*. *ΔBFR$_t$*: change in working capital between *t-1* and *t*. *CAF$_t$*: the cash flow on *t*. *TRES$_t$*: initial cash on *t*. *RA$_t$*: share repurchases in *t*. *ΔD$_t$*: net debt in *t*. *NE$_t$*: net equity issue in *t*.

The average change in the components of the financing deficit (Table 4) shows variations in the amount of dividends (*DIV*) and net investment (*I*). The change in working capital (*ΔBFR*) moves from a surplus in 1998 to a need by 2007. On average, internal cash flow (*CAF*) represents slightly more than three times the amount of equity issues, suggesting the importance of this source of financing. The companies showed a net surplus of cash (*TRES*) which is larger than the *CAF*. The amount of the repurchased shares (*RA*) represents a

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[3] DEF = cash dividends + net investments + change in *working capital* – cash flow = net debt issued + net equity issued of shares.
[4] We take into account the influence of cash from the point of view of French functional analysis. Financial short-term debts are taken into account in calculating net cash.

little more than double the amount for net investments and constitutes the principal source of the deficit. The *CAF* and the *TRES* cover approximately 85% of the financing deficit. In fact, we note that the amount relative to external financing is notably low and undergoes important fluctuations. On average, the net debt (ΔD) is 81 million Euros. The capital increases (*NE*) are larger with an average of 156 million Euros. All of these various elements show the changing in financing deficit (*DEF*) amount.

Table 3 : Descriptive statistics of the independent and mediation variables.

The table presents descriptive statistics of the independent and mediation variables. *OPINV* is the growth opportunities. *ANAFI* is the number of analysts; *INTANG* is the intangibility of assets. *DEF* is the financing deficit.

Variables		Mean	Standard deviation	Minimum	Maximum	Observations
OPINV	*Overall*	0,051	0,047	0	0,707	N = 1 083
	Between		0,031	0,008	0,20	n = 110
	Within		0,037	-0,095	0,561	
ANAFI	*Overall*	15,332	13,326	0	57	N = 1 083
	Between		12,665	0	50,6	n = 110
	Within		4,162	-14,668	30,232	
INTANG	*Overall*	0,181	0,216	-0,790	0,802	N = 1 083
	Between		0,198	-0,667	0,532	n = 110
	Within		0,087	-0,578	0,624	
DEF	*Overall*	7,792	0,925	4,301	10,299	N = 1 083
	Between		0,746	6,607	9,415	n = 110
	Within		0,546	4,930	9,508	

Tableau 4 : Average corporate cash flows – Financing deficit

The table presents financing deficit components (mean values). DIV_t : dividendes on *t*. I_t : net investments on *t*. ΔBFR_t : Changes in working capital between *t-1* et *t*. CAF_t : Internal cash flow on *t*. $TRES_t$: Initial cash on *t*. RA_t : shares repurchases on *t*. ΔD_t : net debt on *t*. NE_t : equity issues on *t*.

	DIV	I	ΔBFR	CAF	TRES	RA	DEF	ΔD	NE
1998	43,2	309,2	-10,8	410,7	412,1	697,3	**216,1**	-1,8	217,8
1999	53,2	324,4	181,2	451,0	409,6	855,0	**553,2**	418,4	134,8
2000	87,0	487,5	72,5	598,5	609,5	883,1	**322,2**	92,1	230,0
2001	97,2	511,9	-22,4	359,9	690,3	823,5	**360,0**	213,2	146,8
2002	103,7	431,4	-152,2	298,0	805,7	766,2	**45,3**	-363,0	408,3
2003	105,1	376,6	-133,8	493,2	837,3	900,0	**-82,7**	-130,3	47,6
2004	113,9	339,4	151,6	694,3	840,6	1253,0	**323,1**	194,9	128,1
2005	145,9	377,5	9,9	773,3	823,8	1233,0	**169,2**	93,0	76,2
2006	165,8	424,6	14,1	825,7	813,0	1289,3	**255,2**	174,9	80,2
2007	191,0	451,4	62,9	928,6	864,1	1298,3	**210,8**	118,6	92,2
Moyenne	110,6	403,4	17,3	583,32	710,6	999,87	**237,24**	81	156,2

The correlation matrix (Table 5) shows that the number of financial analysts (*ANAFI*) and the intangibility of the assets (*INTANG*) have a positive and statistically significant correlation with the dependent variable. Only the investment opportunities have no significant relation with the dependent variable. The financing deficit is positively correlated with the firm's financing decisions and the coefficient is statistically significant. The financing deficit is also positively correlated with the variables related to the number of financial analysts (*ANAFI*) and to the intangibility of assets (*INTANG*). This result suggests the existence of a relation between the financing deficit, information asymmetry, and the decision to issue shares to employees, as *H4* suggests. Globally, we did not identify any multicollinearity problem. The average variance inflation factor (*VIF)* was established at 1.31.

Tableau 5 : Correlation matrix

(*DEEI)* is the dependent variable. *OPINV* is the growth opportunities. *ANAFI* is the number of analysts. *INTANG* is the intangibility of assets. *DEF* is the financing deficit.

	DEEI	**OPINV**	**ANAFI**	**INTANG**	**DEF**
OPINV	**-0,0031**	1			
ANAFI	**0,2379*****	-0,0238	1		
INTANG	**0,1456*****	-0,1562***	0,1928***	1	
DEF	**0,2029*****	-0,0275	0,5995***	0,1365***	1

Significant at ***1%, **5%, *10%.

3. Empirical tests and discussions

3.1. Empirical tests

We examine the probability to issue equity to employees by using the panel data, due to their dual individual and temporal dimensions. Because the variable explained (*DEEI*) is qualitative in nature, we modeled the probability of the occurrence of this decision using a *logit* model. The probability of chi2 for the *Hausman test* is 0, which leads us to choose the fixed effects model. We make estimates using the cluster-robust-standard errors method. We created a new Company variable, the cluster variable, which, for example, gives the value 1 to all of the observations from company 1 and the value 2 to all of the observations of company. Concretely, we estimate the following econometric model:

$$DACRS_{it} = \alpha + \beta_{it}OPINV + \beta_{it}ANAFI + \beta_{it}INTANG + \beta_{it}DEF + \varepsilon_{it}$$

We assume that the level of financing deficit (*DEF*) could account for the relation between information asymmetry and the firms' decision to issue equity to employees. To

verify this intermediate effect of the financing deficit, Baron and Kenny (1986) proposed to conduct three regressions to verify whether the four following conditions are satisfied: **Condition 1**: the variable linked to information asymmetry should have a significant impact on the decision to issue equity to employees (β_1 should be significant). **Condition 2**: the variable linked to information asymmetry should have a significant effect on the financing deficit (β_2 should be significant). **Condition 3**: the financing deficit should significantly influence the dependent variable when the influence of the information asymmetry variable on the dependent variable is controlled (β_4 should be significant). **Condition 4**: the significant influence of information asymmetry on the decision to issue equity to employees should disappear (β_3 should not be significant). If the four conditions are satisfied, there is a **complete mediation**. If all of the conditions with the exception of condition 4 are fulfilled, there is **partial mediation** (Baron and Kenny, 1986).

The results of the three regressions, allowing for the test of the four conditions proposed by Baron and Kenny (1986), are presented in Table 6. The conditions of mediation are not fulfilled when the information asymmetry is measured by investment opportunities (*OPINV*) and the number of financial analysts (*ANAFI*). When information asymmetry is measured by the intangibility of assets (*INTANG*), there is partial mediation because the first three conditions are fulfilled (Baron and Kenny, 1986; Caceres and Chumpitaz, 2003). In other words, the effect of information asymmetry (*INTANG*) on the firms' decision to issue equity to employees, exists in both direct and indirect ways. This result allows for a partial validation of *H4*.

Table 6 : Results of the mediation analysis

(*DEEI*) is the dependent variable. *OPINV* is the growth opportunities. *ANAFI* is the number of analysts. *INTANG* is the intangibility of assets. *DEF* is the financing deficit.

		OPINV	*ANAFI*	*INTANG*
DEEI=a+β_1AI + ε	**(β_1)**	-0.178 (0.936)	**0.045*** (0,000)**	**2.108*** (0.001)**
DEF=a+β_2AI + ε	**(β_2)**	-0.354 (0.448)	**0.028*** (0.000)**	**1.060*** (0.000)**
DEEI=a+β_3AI + β_4DEF + ε	**(β_4)**	**0.631*** (0.001)**	0.308 (0.144)	**0.588*** (0.003)**
DEEI=a+β_3AI + β_4DEF + ε	**(β_3)**	0.211 (0.924)	**0.032*** (0.010)**	**1.902*** (0.004)**

Tableau 7 : Models

(*DEEI*) is the dependent variable. *OPINV* is the growth opportunities. *ANAFI* is the number of analysts. *INTANG* is the intangibility of assets. *DEF* is the financing deficit.

	Modèle 1	Modèle 2	Modèle 3	Modèle 4
DEEI	Nb d'observations : 1083 Prob>chi2 = 0,0061 Pseudo R^2 = 0,0481	Nb d'observations : 1083 Prob>chi2 = 0,0005 Pseudo R^2 = 0,0674	Nb d'observations : 1083 Prob>chi2 = 0,0000 Pseudo R^2 = 0,0673	Nb d'observations : 1083 Prob>chi2 = 0,0161 Pseudo R^2 = 0,0482
OPINV	0,211 (0,924)			
ANAFI		0,033*** (0,010)		
INTANG			1,902*** (0,004)	
DEF	0,631*** (0,001)	0,308 (0,144)	0,588*** (0,003)	0,630*** (0,001)
constante	-6,698*** (0,000)	-4,704*** (0,004)	-6, 750*** (0,000)	-6,684***(0,000)

Significant at ***1%, **5%, *10%.

The degree of investment opportunities (*OPINV*) is the first variable retained as indicator of the information asymmetry. Due to the double investment by employees in human and financial capital, we supposed that the firms with significant investment opportunities would increase the information asymmetry with employees. This assumption leads to the supposition that the degree of investment opportunities has a negative effect on the firms' decision to issue equity to employees (*H1*). The relation stated between the investment opportunities and the financing decision is not statistically significant (Table 7). **H1 was not confirmed**. The second variable retained for representing the degree of information asymmetry is the number of financial analysts (*ANAFI*). We suggested that the larger is the number of financial analysts, the most they would contribute to reduce the information asymmetry between the firms and the employee-investors. This reduction would have a positive effect on the firms' decision to issue equity to employees (*H2*). The coefficient associated with the *ANAFI* variable is positive and statistically significant. **H2 is confirmed**. The intangibility of assets (*INTANG*) is the last variable measuring information asymmetry. We believe that the companies that are intensive in intangible assets (which include human capital) should be more likely to share risk by opening capital to employees. We thus suppose that the intangibility of assets has a positive effect on the firms' financing decision. The coefficient associated with this variable is positive and statistically significant. **H3 is confirmed**. If the tests allow for confirming a partial mediation with intangibility as proxy for information asymmetry, we find, using three models, that the financing deficit is positively associated with the dependent variable (Table 7). The coefficient relative to this variable is statistically significant. The results obtained also allow for a partial confirmation of the positive effect of this variable on the firms' decision to issue equity to employees. Finally,

in terms of a pseudo R^2, Model 2 (*ANAFI* – 0.0674) and Model 3 (*INTANG* – 0.0673) appear to explain better the decision to issue equity to employees.

Tableau 8 : Results

Predicted sign with dependent variable	Results
(H1) -	Not confirmed
(H2) +	Confirmed
(H3) +	Confirmed
(H4) mediation role	Partially confirmed with a direct effect on dependent variable

3.2.Discussion

The hypothesis concerning the variables linked to information asymmetry are confirmed, except when using investment opportunities (*H1*) as a proxy for information asymmetry. With respect to this last variable, most previous studies have established a negative relation with the level of debt (Franck and Goyal, 2003). Companies that are characterized by a higher level of investment opportunities should issue equity more frequently. Unlike these studies, our research does not show an impact of the level of investment opportunity on the decision to issue equity to employees. This result could be justified through the proxy of our variable. We therefore replaced our current measure (relationship between net investments and total assets) with the market-to-book ratio (the relationship between market capitalization and the book value of the capital). The results remained the same.

The positive and significant relation obtained between the coverage by financial analysts and the firms' decision to issue equity to employees (*H2*) shows that the probability of implementing this source of financing tends to grow with the number of financial analysts who are following the firms. Consequently, this study shows the influence of information asymmetry on the firms' financing decisions. Because this influence has been emphasized in the literature on classic equity issues, firms appear to open capital to employees at a moment when information asymmetry is thought to be lower (stronger coverage by financial analysts). Our results confirm those previously found by Bessler et al. (2010), Bharat et al. (2009) and Chang et al. (2006), who show an influence of the degree of information asymmetry on the firms' financing decisions, particularly for equity issues. Our results also provide an answer to the research question of this paper by showing that information asymmetry plays a significant role in the firms' financing choice. Finally, these results corroborate the core assumption of

the pecking order theory in that the existence of information asymmetry conditions the firms' financing decisions.

The positive and significant relation obtained between the intangibility of assets and the firms' financing decisions shows that the firms that make large investments in intangible assets (including human capital) should further open capital to employees to share the risk with them and maintain the stability of their investment in human capital. This result confirms again the role played by information asymmetry in the financing decisions. Furthermore, this result is congruent to a certain degree with the studies by Gatchev et al. (2009) and Tsai (2005), which show that the optimal financing choice for companies that invest intensely in intangible assets is a capital increase.

We also assumed that the financing deficit defined the process by which information asymmetry influences companies' decision to issue equity to employees. The results of the mediation tests allow for a partial validation of the mediation role when intangibility is considered as a proxy for information asymmetry. The introduction in the regressions of the financing deficit to test its direct impact on the firms' financing decision shows, with the exception of Model 2 (Table 7), that the probability of firms' decision to issue equity to employees increases with the level of the financing deficit. The positive and statistically significant coefficient for this variable (Models 1, 3 and 4) is consistent with the predictions of the pecking order theory: firms will use external financing in the case of an insufficiency of internal financing.

Conclusion

This paper investigated the impact of information asymmetry on the firms' financing decision to issue equity to employees. Based on the core assumption of the pecking order theory, two central questions are addressed in this study. Does information asymmetry influence the decision to issue equity to employees? Can one therefore compare an employee equity issue to a classic equity issue? Our results show that when information asymmetry is measured by the number of financial analysts and the intangibility of the assets, this information asymmetry has a positive effect on the decision to issue equity to employees. This result is consistent with a several studies that have shown an influence of the degree of information asymmetry on the firms' financing decisions, especially for equity issues (Autore

and Kovacs, 2010: Leary and Roberts, 2010). In consequence, based on these two measures of information asymmetry, this study shows that employees' equity issues can be associated with classic equity issues. In fact, if the implementation of the CIRE is also a function of the degree of information asymmetry, the modalities for this choice of financing do not differ from those identified for classic equity issues. Furthermore, our research provides additional contribution on the role played by the financing deficit in firms' financing policies. The results confirm that the level of financing deficit has a positive influence on the firm's decision to issue equity to employees. This finding allows for the indirect confirmation of the pecking order theory. Future studies that analyze, for example, the effect of the announcement of employees' equity issues on the firms' stock price to test for the existence of windows of opportunity (Baker and Wurgler, 2002) can contribute to enhance our understanding of the development of employees' equity issues in France.

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