Private Equity Firms' Behaviours in Western Europe: Does Country Matter?

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Abstract

Using a unique dataset of private equity firms (PEFs), this paper analyses the investment behaviour of private equity fund managers. This paper uses a multi-country sample of PEFs to compare the approaches to investee valuation, contractual agreements and financial tools in Europe. Univariate analyses describe practices of PEFs and multivariate analyses identify groups of homogeneous countries i.e. countries where PEFs' behaviours are similar. The comparison of these groups with traditional classifications based on legal regimes does not perform very well. This result can illustrate either the limits of the classification of countries based on legal regimes or the increasing integration of the most developed European countries that makes practices of financial actors converge across European countries.

Key words: Private Equity, Legal Regimes, Investment Appraisal, Contractual Agreements, Financial Tools
JEL classification: G24, G30, D81, D82, G32, M13, M40

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1 – Introduction

Private equity is an important and increasing part of the worldwide capital markets. It includes early stage investments (venture capital), later stage investments (development capital) and buyouts. Private equity has prospered most in the United States where venture capital has been important in the financing of many new industries at the initial stage firms [Freear and Wetzel (1994)]. Investments by private equity firms have sharply increased in Europe and Asia for the last decade too [Allen and Song, 2002]. Megginson (2004) documents "phenomenal growth in venture capital fund raising and investment over the past decade in the United States, western Europe and in certain Asian countries, but not in Japan or in most developing countries". In western Europe, the amount invested by private equity firms (PEFs) had indeed increased from less than 5,000 million euros in 1990 to roughly, 35,000 million euros in 2000 [Cieply (2002)]. In Europe, these investments concern for a large part buyouts: between 1995 and 1999, 51% of the total amount of private equity investments was invested in buyout deals [E.V.C.A. (2001)]. In 2006, buyouts took an even larger proportion with 70.7% of investments [E.V.C.A. (2006)]. In this context, PEFs have focused public concern as a driver of future growth in Europe and as a solution to bridge capital gaps small and medium sized firms are supposed to suffer from.

The general purpose of this article is to examine the conduct of European PEFs in their provision of finance capital to firms. Its specific focus is on the valuation of companies, the contractual agreements and the financial tools used by PEFs from five European countries: France, Germany, Italy, Spain and the United Kingdom. We select these five countries because their Gross Domestic Products are the highest in Europe, private equity fundraising and investment are the most advanced across western Europe [E.V.C.A. (2006)] and their corporate governance models still remain different according to La Porta *et al.* (1998). In this paper, we investigate similarities and dissimilarities between PEFs from these five European countries according to their nationality. Groups of homogeneous countries, where PEFs' behaviours are similar, are built and compared with the classification based on legal regimes introduced by La Porta *et al*. (1998). Finally, we test the quality of this typology to describe the behaviours of financial actors across Western Europe.

The methodology we adopt combines questionnaire analyses with multidimensional statistical analyses. New primary source data is generated by an electronic questionnaire (with call-back) sent to PEFs active in one of the five selected countries. In this research, we question PEFs and not only

venture capital firms to take into account not only the financing of early stages but the financing of latter stages (in particular buyouts) too. This large focus is driven by the fact that, according to the European Commission (2006), over the next 10 years, one third of all European companies (each year an average 610,000 small and medium-sized enterprises, 300,000 SMEs with employees and 310,000 one-man companies) should change hands affecting potentially 2.4 million jobs. Otherwise, this focus limits the influence of "investor sentiments" [Reid and Smith, 2005] on the screening and monitoring of projects and makes comparisons of financial and contractual practices less influenced by psychological factors. Finally, this article completes prior academic research on PEFs' behaviours driven by Wright *et al*. (2005) that shows major differences in investment appraisal and accounting information between venture capital firms in the United States, Europe and Asia. Our article enlarges the problematic to contractual agreements and financial tools but focus only on western European countries. Contrary to Wright *et al*. (2005), our empirical results are not consistent with the classification of legal systems introduced by La Porta *et al*. (1998).

The remainder of the paper proceeds as follows. In section 2, we explain why countries may still matter in determining European PEFs' behaviours. Section 3 describes data, variables and statistical methods and section 4 presents empirical results. Section 5 concludes and discusses the quality of the classification based on legal regime to take into account differences in PEFs' behaviours across Western Europe.

2 - Institutional structures and hypotheses

For Cumming, Schmidt and Walz (2004), differences in legal systems justify differences in the behaviours of venture capital funds around the world. These authors apply to venture capital the lessons of the classification of legal regimes introduced by La Porta *et al.* (1998). In this analysis, two dual legal regimes are opposed. On the one hand, the "regime of common law" is based on the Anglo-Saxon legal tradition. It ensures a very strong protection to both shareholders and creditors because of the high enforcement power of contracts and the good quality of information. According to La Porta *et al.* (1998), the United Kingdom is a pure common law system. On the other hand, the "regime of French civil law" derives from the Roman law. It offers a low degree of protection to external investors, a low enforcement power of contractual agreements and a low quality of information. According to La Porta *et al.* (1998), Italy and Spain belong, like France, to French civil law systems. The regimes of "German and Scandinavian civil law" are

intermediate. In these two legal systems, the enforcement power of contracts is higher than in common law countries. For the quality of information, the German civil law countries are very close to the French civil law countries.

These differences in legal system can influence PEFs' behaviours. Cumming, Schmidt and Walz (2004) show, on a sample of 3,848 portfolios of venture capital firms from 39 countries during the period 1971-2003, that differences in legal systems have a significant impact on the way venture capital firms screen and monitor investee. More precisely, countries, where shareholders are the most protected, are those where deals are originated the most quickly, with the highest rate of syndication and the highest frequency of private equity firms in investees' board. Manigart *et al.* (2000) and Wright *et al.* (2005) show significant differences in valuation methods between venture capitalists from the United Kingdom, the United States, continental Europe and Asia. According to them, German PEFs are more likely to use discounted cash flow based measures and less likely to use comparators than common law countries. PEFs in countries based on the French legal system are more likely to adopt historic cost valuation methods. For Kaplan, Martel and Strömberg (2007), contracts in common law countries are more complete (with for example more anti-dilution protection and a greater use of vesting provisions) and venture capitalists in common law countries are the least likely to keep the founder in control of the board.

In this article, we expect legal systems to be associated with different PEFs' behaviours. More precisely, three hypotheses are extracted from this prior academic research on PEFs' behaviours according to legal systems.

First, as the quality of information is different in common law and civil law countries, methods of investment appraisal used by PEFs may be different. We expect an opposition between, on the one hand, French, Italian, Spanish and, at a lesser extent, German PEFs and, on the other hand, British PEFs. More precisely, we expect assets-based approaches to be more used in French civil law countries and comparators-based methods and prospective methods more developed in the United Kingdom.

Second, legal regimes may affect the design of contractual agreements. In buyouts, pricing is difficult because of informational asymmetries, uncertainty on growth or agency problems. Specific contractual agreements are integrated in buy-out deals to cope with this problem. We expect, like Kaplan, Martel and Strömberg (2007), agreements to be significantly different in common law countries than in civil law countries.

Third, as the protection of creditors and shareholders is different according to the nature of legal regimes, we expect PEFs to use different financial tools in civil law countries and in common law countries. Transfers

of firms are often financed by leverage buyout mechanisms where debt is supplied either by banks and/or by private equity firms. In bank-oriented countries (Spain, Germany, Italy and perhaps France), we could expect debt to be more important in the financing supplied by PEFs than elsewhere. Moreover, as creditors are more protected in German civil law than in French civil law, we expect debt to be more used by German PEFs than French, Spanish or Italian PEFs. Furthermore, as shareholders are less protected in civil law countries than in common law ones, we expect differences in the way PEFs become major shareholders or remain minority shareholders.

3 - Data and Research method

In this section, the sample is described (3.1). The questionnaire and the variables are introduced (3.2) and statistical methods are explained (3.3).

3.1 Sample

In this article, we use a hand-collected dataset on a population of private equity firms from five European countries: France, Germany, Italy, Spain, and the United Kingdom. We select these countries for three reasons. First, their governance systems still remain different at the end of the nineties [La Porta et al. (1998)]. Second, few articles focus on PEF' behaviours in Latin European countries and study them in comparison with Germany and the United Kingdom. Third, these countries are the most advanced in European private equity with Netherlands and Sweden [E.V.C.A. (2006)].

A sampling frame was created by drawing upon two sources: the membership list of national venture capital associations in each selected country and the listing of European investors provided by the European Venture Capital Association. We select private equity firms active in latter stages, fully or partially. 403 PEFs were identified and investigated by e-mail (with call-back) from September 2003 to February 2004. Our database includes information coming from two other sources too: yearbooks published by national and European associations and all reports published on websites of private equity firms.

A response rate of 19.6% (i.e. 79 respondents) was achieved, which is quite typical for surveys of this sort. Table 1 gives the distribution of respondents according to their nationality identified by their membership affiliation to associations. In the following statistical analysis, all results are corrected to be representative of PEFs according to their nationality.

Table 1: data description

	Total number of PEFs	PEFs active in buy outs (Population)	PEFs active in buy outs (%)	PEFs answering the survey (Sample)	Rate of answer (%)
Germany	181	52	28.73	12	23.08
Spain	80	43	53.75	5	11.63
France	185	114	61.62	37	32.46
Italy	75	50	66.67	11	22.00
U.K.	221	144	65.16	14	9.72
Total	742	403	54.31	79	19.60

The characteristics of private equity firms in this sample are described in the table 2. 37.3% are sector-specialised. The others are generalists. 48.65% of PEFs in this sample locate their activities in only one country, 17.81% in several countries, 18.44% in all European countries and only 15.11% are worldwide. 35.31% of PEFs finance all stages. 38% finance only latter stages and 10.02% only finance transfers of business. 26.99% of PEFs in our sample are affiliated to banks and 71.43% are independent.

Table 2: characteristics of PEFs in the sample

	Response rate	Responses	Frequencies % according to responses
Sectorial specialisation	98.47	Without specialisation	62.73
		With specialisation	37.27
Geographical Specialisation	100	National	48.65
		Some countries	17.81
		Europe	18.44
		International	15.11
Stage	100	All stages	35.31
		Latter stages	38
		Buy out exclusively	10.02
		Early stage	16.68
Shareholders of PEF	96.37	Banks	26.99
		Corporate	1.59
		Independent	71.43

Table 3 describes the size distribution of PEFs in our sample. We observe the large variety of PEFs concerning the number of employees and the amount invested (minimum, maximum or average deal value).

Table 3: Size distribution of the sample

	Number of response	Average	Min.	Max.	Standard deviation
Number of employees	74	29.19	1	300	56.73
Min. Deal	68	6112920	10000	50000000	10125000
Max. Deal	63	16894000	77000	6000000000	746654000
Average Deal	69	93958500	46000	3025000000	362558000

3.2 Questionnaire and variables

Our hand-collected dataset is structured in three subjects we call themes. The first two themes are built with data coming directly from the questionnaire. The last theme is built with information coming from European and national associations and PEFs' websites.

The first theme is about investment appraisal methods used by PEFs. What methods do PEFs use the most? As they use several methods for each project, we allow them to mention the three methods they use the most when they finance firms.

Following Wright *et al*. (2005), we distinguish several approaches. The assets-based approach uses track records and looks for collaterals among assets owned by the investee. The comparators-based approach (Multiples or Relative method) takes into account publicly available information on peer firms. The value of a company is directly derived from the pricing of "comparable" firms relative to a common variable such as earnings, cash flows, book value and revenues. The prospective-approach is based on the assessment of Discounted Cash Flows (D.C.F.). D.C.F. models calculate the present value of expected future free cash flows by discounting them with the appropriate discount rate. Three types of D.C.F. models can be distinguished. The Weighted Average Cost of Capital (W.A.C.C.), or Cash Flows to Entity model, is often distinguished as the most widely used in practice [Groh (2002)]. With this model, the discount rate is reckoned as the opportunity cost to all capital providers weighted by their relative contribution to firms' total capital. The Adjusted Present Value (A.P.V.) model separates the value of a company into two components: the value of the firms' operations at the cost of capital as if firms are not indebted and the additional impact on this value by the tax savings from leverage. This method is typically used in leveraged buyout transactions. The third D.C.F. model is the Cash Flows to Equity model where the rate of discount is the cost of equity. This model is the most

appropriate for valuing investment projects financed solely by equity, which concerns mainly early stage investments. As latter stages, in particular buyouts, rely heavily on debt, we do not consider directly this approach. However, PEFs could always mention it by answering "other methods" and specify they use Cash Flows to Equity model. Choosing this modality, they can mention too they use real options valuation models. To be complete, we consider the potential appraisal by PEFs of goodwill capital methods, which takes into account the capital arising from R&D and advertising [Supina and Mueller (2002)].

Theme 1: Investment appraisal methods

Among the investment appraisal methods listed below, what are the three ones you have used the most for five years?
- □ Assets-based method
- □ Multiple method
- □ D.C.F. method based on W.A.C.C.
- □ D.C.F. method based on A.P.V.
- □ Goodwill methods
- □ Others: …

The second theme deals with contractual agreements used by PEFs. In buy-out, informational asymmetries can occur when sellers are more informed on firm's value that buyers. In addition a moral hazard problem can arise when the value of firms depends on owner-manager after deal. To partially solve this problem, contractors can use specific contractual agreements. We focus on three of them: two parts payments, keeping founders as residual shareholders and warranties.

Two parts payments include deferred payments: earnouts. The final payment depends on future performance of targets at a fixed date. Performance is defined with indicators selected at the beginning of the deal. As agreeing on an indicator of performance and measuring the *ex post* results of target may cause difficulties, this contractual agreement is difficult to be written and enforced [Datar, Frankel and Wolfson (2001)]. The keeping of founders as residuals shareholders can be introduced in shareholders' alliance. This clause is close to earnouts but is easier to implement as it does not depend on precise measure of performance and must not always be achieved at a fixed date. Representations and warranties certify the value of assets and liabilities of the target. They insure that all means of production are under the company's control and that any hidden liabilities cannot be identified. Warranties are based on past events and are easier to enforce than earnouts.

Theme 2: Contractual agreements

For the last five years, have you introduced representations and warranties in acquisition agreements?
□ sometimes (less than 25% of cases) □ often (between 26 to 75% of cases) □ very often (more than 76% of cases)
For the last five years, have you introduced earnout agreements?
□ sometimes (less than 25% of cases) □ often (between 26 to 75% of cases) □ very often (more than 76% of cases)
For the last five years, have you made compulsory the keeping of the founders as residual shareholders?
□ sometimes (less than 25% of cases) □ often (between 26 to 75% of cases) □ very often (more than 76% of cases)

The last theme studies financial tools used by PEFs. Financing of Latter stages is often based on complex financial set-ups with not only equities but quasi-equities and debts too. Debts in buyout deals are in general junior debts. This financial tool is a highly subordinated debt and creditors are repaid only after all other subordinated debt claims have been settled [Vernimmen, Le Fur and Quiry (2005)]. Furthermore, when firms are equity financed, we identify the statute of PEFs which can be either majority or minority shareholders as we expect differences between PEFs according to their legal regime.

Theme 3: Financial tools

How do you finance firms: □ only with equity and quasi equity □ with equity, quasi-equity and debt
When firms are equity financed: □ you are always minority shareholder □ you can be majority shareholder

3.3 Statistical methods

In this article, the statistical treatment is based on both univariate and multivariate analyses. Univariate analyses (Tables 4, 6 and 8) describe the practices of PEFs concerning valuation methods, contractual agreements and financial tools. With multivariate analyses we test hypotheses. A barycentric discriminant model [Nakache (1981)] determines the variables that discriminate the most between groups of PEFs classified according to their nationality. This discriminant model consists to apply an Ascendant Hierarchical Classification with Ward's criteria[4] on the significant principal components of the Factorial Correspondence Analysis [Benzecri (1976)]. In a

[4] Generalised Ward's Criteria: aggregation based on the criterion of the loss of minimal inertia.

cross table, the rows are made up of the five modalities of the nationality variable we want to explain. The columns are built with a juxtaposition of the modalities of the explanatory variables of the selected theme. For each theme, a ClustanGraphics tree (Figures 1, 2 and 3) summarizes the final classification of the five countries. Then, for each theme, the hierarchical tree is split into groups of countries that are very close together. This analysis tests the discriminating quality of legal regimes to describe PEFs' behaviours. More precisely, we expect to build a classification of countries that corresponds to the typology of countries based on legal regimes. Finally, characteristics of each group of countries are identified. The classes division is strengthened around the centres of gravity for the classes thanks to the k-means method. The statistical description (using a 5% significance level) of the content of each class of classes retained is given in Tables 5, 7 and 9. The class standard profile is based upon comparisons of percentages of the modality in the class (% of frequency in the class) and of this same modality out of the class (% of frequency in total sample) taking into accounts the degree of inclusion of the class in the modality (% of the class in the frequency). The selection of the most characteristic modalities that come out of each class stems from the gap between the relative values of the class and the global values. These values are converted into a test-value criterion (Test-Value) and are given in a decreasing order with a lower than 5% error risk (Probability) which allows us to classify the most characteristic modalities for each class. This method of structural data analysis determines and ranks the significant discriminant modalities of the selected explanatory variables for each theme.

4. Results: the limits of legal systems to determine PEFs' behaviours in Europe

In this section, we describe practices of PEFs, we look for significant dissimilarities between PEFs according to their nationality and we compare groups of countries to the expected classification based on legal regimes for investments appraisal methods (4.1), contractual agreements (4.2) and financial tools (4.3).

4.1 Investments appraisal methods and classification of European countries based on legal regimes

Descriptive statistics concerning the use by PEFs of investments appraisal methods are given in the following table. We confirm the results of Groh (2002) and Wright *et al*. (2005): the most widespread method is the

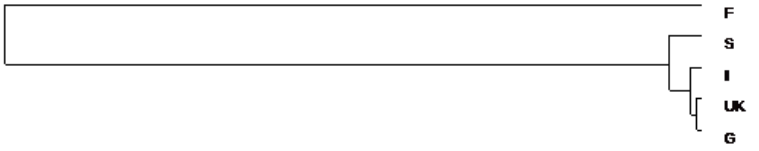
D.C.F. method. According to our results and contrary to Groh (2002), this method is based for a large majority of PEFs (79.05% of the sample) on A.P.V. The Discounted Cash Flow method based on W.A.C.C. is less often used (only 40.91% of the sample). This high use of D.C.F. method based on A.P.V., and not on W.A.C.C., can be explained by the high proportion of buyouts in the investments made by our sample of PEFs. Like in Wright *et al*. (2005), there is a widespread use of comparators (67.22% of the sample) and assets-based methods are not among the most prevalent methods used by PEFs (54.99% of the sample). Goodwill and other methods, among them real option based methods, are seldom used by PEFs (only 3.82% of PEFS for goodwill and 15.99% for other methods).

Table 4: Descriptive data on investment appraisal methods

Variables	Response Rate (%)	Modalities	Weigh of the modality among responses (%)
Assets-based method (A.B.M.)	100	Use of A.B.M. No use of A.B.M.	54.99 45.01
Multiples Method (M.M.)	100	Use of M.M. No use of M.M.	67.22 32.78
W.A.C.C. D.C.F. method (W.A.C.C)	100	Use of W.A.C.C. No use of W.A.C.C.	40.91 59.09
A.P.V. D.C.F. method (A.P.V.)	100	Use of A.P.V. No use of A.P.V.	79.05 20.95
Goodwill method (G)	100	Use of G No use of G	3.82 96.18
Others methods (O.M.)	100	Use of O.M. No use of O.M.	15.99 84.01

Concerning investments appraisal methods, we build a ClustanGraphics tree that shows the clear opposition between French PEFs and all the others. Behaviours of Italian and Spanish PEFs are closer to British and German practices than to French practices. This classification does not fit the traditional classification based on legal regimes: the traditional classification of countries does not perform to describe practices of European PEFs concerning investment appraisal methods.

Figure 1: Hierarchical tree according to investments appraisal methods



This analysis leads us to split the hierarchical tree into two groups of countries, which are characterized in Table 5.

The first class corresponds to PEFs from Germany, Italy, Spain and the United Kingdom. PEFs in these countries use more than the others both the adjusted present value method (16.42% in the class against 13.17% in the total sample) and the assets-based methods (11.18% in the class against 9.17% in the total sample). By contrast, and surprisingly for the United Kingdom, they use less than the others methods based on comparators (9.40% in the class against 11.20% in the total sample). The second class gathers only French PEFs. They use, more than the others, the discounted cash flows method based on Weighted Average Cost of Capital (11.71% in the class against 6.82% in the total sample), the comparators-approach (15.77% in the class against 11.20% in the total sample) and the goodwill method (2.25% in the class against 0.64% in the total sample).

According to these empirical results, we cannot conclude that British PEFs' investment appraisal methods are more comparators-based, nor that French PEFs' use more than German and British PEFs assets-based methods. We confirm two expectations. First, Spanish and Italian PEFs use significantly these last methods based on firms' track records (but like German and British PEFs). Second, British PEFs use significantly D.C.F. methods based on A.P.V. (but like Spanish, Italian and German PEFs). Finally, our first hypothesis cannot be fully accepted: investment appraisal methods are not very different across the five selected European countries except for France. The most important result is the dominant use by all European PEFs of Discounted Cash Flow methods: all PEFs, whatever may be their nationality, use prospective approaches (A.P.V. and W.A.C.C.).

Table 5: Discrimination of countries according to investment appraisal methods

Class 1/2 Germany, Italy, Spain & U.K.

Characteristics	% of frequency in total sample	% of frequency in the class	% of the class in the frequency	Test-Value	Probability	Weight
Use of A.P.V.	13.17	16.42	89.36	3.27	0.001	62
No use of M.M.	5.46	7.26	95.34	2.87	0.002	26
Use of A.B.M.	9.17	11.18	87.49	2.54	0.006	43
No use of W.A.C.C.	9.85	11.78	85.77	2.39	0.008	47
Use of goodwill	0.64	0.00	0.00	-2.00	0.023	3
Use of M.M.	11.20	9.40	60.19	-2.02	0.022	53
No use of A.B.M.	7.50	5.49	52.44	-2.45	0.007	36
Use of W.A.C.C.	6.82	4.89	51.41	-2.49	0.006	32
No use of A.P.V.	3.49	0.25	5.13	-6.00	0.000	17

Class 2/2 France

Characteristics	% of frequency in total sample	% of frequency in the class	% of the class in the frequency	Test-Value	Probability	Weight
No use of A.P.V.	3.49	11.71	94.87	5.37	0.000	17
Use of W.A.C.C.	6.82	11.71	48.59	2.15	0.016	32
No use of A.B.M.	7.50	12.61	47.56	2.12	0.017	36
Use of goodwill	0.64	2.25	100.00	2.01	0.022	3
Use of M.M.	11.20	15.77	39.81	1.75	0.040	53
Not use of W.A.C.C.	9.85	4.95	14.23	-2.36	0.009	47
Use of A.B.M.	9.17	4.05	12.51	-2.51	0.006	43
Not use of M.M.	5.46	0.90	4.66	-2.85	0.002	26
Use of A.P.V.	13.17	4.95	10.64	-3.60	0.000	62

4.2 Contractual agreements and classification of European countries based on legal regimes

Descriptive statistics concerning the use by PEFs of contractual agreements are given in the following table. 61.94% of PEFs use intensively (in more than 76% of cases) representations and warranties. The majority of PEFs (64.19% for the keeping of founder as residual shareholding and 61.29% for earnouts) introduced these agreements in less than 25% of cases. 13.88% of PEFs use intensively the keeping of founder as shareholder. Only 8.85% of PEFs introduce intensively earnouts. The potentially high cost associated with this kind of agreement [Datar, Frankel and Wolfson (2001)] can explain this relatively low use of earnouts.

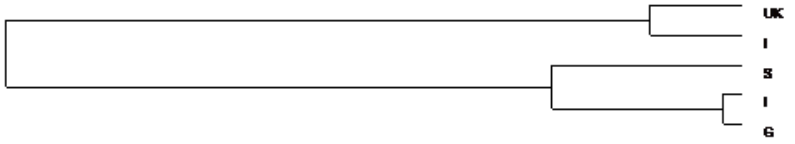
Table 6: Descriptive data on contractual agreements

Variables	Response Rate (%)	Modalities	Weigh of the modality among responses (%)
The keeping of the founder as residual shareholder	87.55	Low intensity[5]	64.19
		Average intensity[6]	21.93
		High intensity[7]	13.88
Representations and warranties	97.40	Low intensity	26.62
		Average intensity	11.44
		High intensity	61.94
Earnouts	95.10	Low intensity	61.29
		Average intensity	29.86
		High intensity	8.85

The ClustanGraphics tree shows the proximity between, on the one hand, Germany, Italy and Spain and, on the other hand, France and U.K. Again, this classification of countries according to contractual agreements does not fit at all the typology based on legal systems.

[5] less than 25% of cases
[6] between 26% and 75% of cases
[7] more than 76% of cases

Figure 2: Hierarchical tree according to contractual agreements



The hierarchical tree is split into three groups of countries, which are characterized in Table 7.

The first class corresponds to German and Italian PEFs. They distinguish themselves because they use less than the average (3.08% in the class against 9.26% in the total sample) with a low frequency representations and warranties. This result makes the use of this contractual agreement in these two countries very intensive. Their use of other contractual agreements is perfectly homogeneous. This means they do not use more or less than the other earnouts and the keeping of founder as residual shareholder.

The second class corresponds to Spanish PEFs that nothing distinguished from the others. Their use of contractual agreements is perfectly homogeneous (in the average of the sample): an intensive use of representations and warranties and a low level of both earnouts and the keeping of founder as residual shareholder.

The third class corresponds to British and French PEFs. They use more than the others with a low frequency representations and warranties (13.29% in the class against 9.26% in the total sample) and less than the others with a median frequency earnouts (6.71 % in the class against 10.14% in the total sample). PEFs in these two countries can be characterised by a rather low intensive use of contractual agreements.

Table 7: Discrimination of countries according to contractual agreements

Class 1/3 — Germany & Italy

Characteristics	% of frequency in total sample	% of frequency in the class	% of the class in the frequency	Test-Value	Probability	Weight
Low use[8] of representations and warranties	9.26	3.08	8.50	-2.09	0.018	20

Class 2/3 — Spain

Characteristics	% of frequency in total sample	% of frequency in the class	% of the class in the frequency	Test-Value	Probability	Weight

Class 3/3 — France & U.K.

Characteristics	% of frequency in total sample	% of frequency in the class	% of the class in the frequency	Test-Value	Probability	Weight
Low use of representations and warranties	9.26	13.29	91.50	2.46	0.007	20
Average use[9] of earnout	10.14	6.71	42.21	-2.09	0.019	22

4.3 Financial tools and classification of European countries based on legal regime

Descriptive statistics concerning the use by PEFs of financial tools are given in the following table. 61% of PEFs finance firms only with equity and quasi-equity. The others (39%) finance firms not only with equity and quasi-

[8] less than 25% of deals
[9] between 26% et 75%

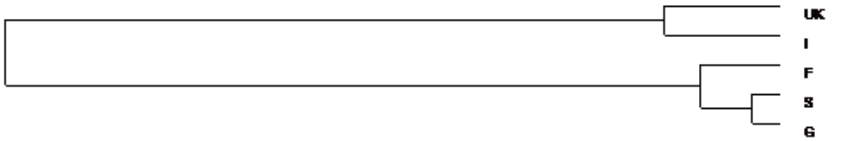
equity but with debts, like mezzanines, too. 18.15% of PEFs are only minority shareholders. 42.49% are only majority shareholders. The others (39.32%) can be either minority or majority shareholders.

Table 8: Financial tools

Variables	Response rate	Modalities	Weigh of the modality among responses (%)
Financing types	91.14	All types (equity and debt) Only equity and quasi-equity	39.00 61.00
Statute of PEFs as shareholder	65.47	Only majority shareholding Only minority shareholding Majority and minority shareholding	18.19 42.49 39.32

The ClustanGraphics tree shows the proximity between German PEFs and Spanish PEFs and, at a lesser extent, French PEFs. This group of PEFs is very different from British and Italian PEFs. Except for Italy, this classification fits the typology based on legal regimes.

Figure 3: Hierarchical tree of countries according to financial tools



This analysis leads us to split the hierarchical tree into two groups of countries, which are characterized in Table 9. The first class corresponds to German, Spanish and French PEFs. They are characterized by minority shareholding (27.70% of PEFs in the class against 17.76% of PEFs in the sample). They use less, than the average of the sample, both minority and majority shareholding (9.43% of the class against 16.44% of the total sample) and both equity and debt (12.19% of PEFs in the class against 22.70% of PEFs in the sample). This class is strictly opposed to Italian and British PEFs. These PEFs are either minority shareholders or majority shareholders (23.38% of the class against 16.44% of the sample). They finance firms more than the others with both equity or quasi-equity and debts (33.11% of the class against 22.70% of the sample). They are less often than the others minority shareholders (7.92% of PEFs in the class against 17.76% of PEFs in the sample).

Table 9: Discrimination of countries according to financial tools

Class 1/2 France, Germany & Spain

Characteristics	% of frequency in total sample	% of frequency in the class	% of the class in the frequency	Test-Value	Probability	Weight
Only minority shareholding	17.76	27.70	77.59	2.98	0.001	22
Both minority and majority shareholding	16.44	9.43	28.52	-2.19	0.014	20
Equity and debt	22.70	12.19	26.70	-2.78	0.003	28

Class 2/2 Italia & U.K.

Characteristics	% of frequency in total sample	% of frequency in the class	% of the class in the frequency	Test-Value	Probability	Weight
Equity and debt	22.70	33.11	73.30	2.34	0.010	28
Both minority and majority shareholding	16.44	23.38	71.48	1.68	0.046	20
Only minority shareholding	17.76	7.92	22.41	-2.98	0.001	22

Financial tools used by PEFs in the five selected European countries still remain different. In Italia and in the U.K., PEFs use all available tools (equity as debt) and do not hesitate to become major shareholders. We confirm for the United Kingdom the results of Kaplan, Martel and Strömberg (2007) applied to a sample of PEFs more active in latter stages, in particular buyouts: financial contracts in common law countries are more complex and complete. We enlarge this empirical result to Italia. In Germany, Spain and France, PEFs are minority shareholders. We confirm the proposition that, in civil law countries, PEFs are more often minority shareholders than in common law countries. However, we must reject the proposition of a higher use of debt by PEFs in bank-based countries. The use of debt, in particular mezzanine debt within leverage buy out schemes, is highly widespread in the United Kingdom. This result can be explained by the high risk of this type of debt which is either unsecured or has a lower priority than that of another debt claim on the same asset or property.

5- Conclusion

In this paper, we explore differences in the behaviours of PEFs from five European countries (France, Germany, Italia, Spain and the U.K.) according to their nationality. We use an original hand-collected dataset which investigates investment appraisal methods, contractual agreements and financial tools PEFs use. The treatment of this hand-collected data with multidimensional statistical analysis shows PEFs' behaviours are not very different across the five selected European countries. When differences exist, the traditional classification of countries based on legal regime does not perform very well except for financial tools.

First, concerning investment appraisal methods, all PEFs, whatever may be their nationality, use prospective approaches (W.A.C.C and/or A.P.V). The French PEFs use more than the others comparative analysis and the goodwill method although all the others bank-based countries (Italy, Spain and Germany) or market-based (the U.K.) rely significantly on assets-based methods and prospective analysis. We do not identify a classification of countries according to investment appraisal methods that corresponds to the typology based on legal systems.

Second, concerning contractual agreements, very few factors make PEFs different according to their nationality. When differences are underlined, they do not fit the classification of countries according to legal regimes. French PEFs and British PEFs belong indeed to the same class characterised by a rather low use of contractual agreements.

Third, financial tools used by PEFs in the five selected European countries still remain different. Italian and British PEFs use all available tools (equity and debt) and can be either majority or minority shareholders. On the contrary, German, Spanish and French PEFs remain minority shareholders. For this theme, the classification of countries based on legal regimes is coherent with our empirical results.

Finally, the classification of countries according to PEFs' behaviours is not stable. We do not indeed identify for each theme the same typology of countries. The typologies we identify seldom correspond to the classification of countries introduced by La porta *et al*. (1998), except for financial tools. Many reasons can explain this mismatching. First, the classification based on legal regimes can be out of date and countries can have deeply changed since the mid-nineties in the context of the European integration. Second, gaps between legal regimes of selected countries can be too thin to reveal differences in practices of PEFs. The use of this typology can be effective to describe behaviours of financial actors worldwide but not within the western

European area. Third, differences in legal regimes can be inoperative for a financial activity which is worldwide and largely inspired by the American success story. In this case, we can question the coherence of national financial systems based on civil law regimes when they integrate typically American practices.

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