Agency costs, vertical integration and ownership structure: the case of wine business in France.

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Abstract: French Wine Business raises specific questions on organizational forms. Indeed, the pervasiveness of specific organizational forms such as family-controlled firms and cooperatives and the diversity of vertical integration strategies stress the question of agency costs and their effects on performance. In this paper, we use the Ang, Cole and Lin (2000) methodology to measure agency costs according to governance structure and vertical integration on a sample of 180 wine firms. The econometric analysis displays highly significant results which let think that (i) family-controlled firms may be subject to agency problems partly solved by the "outside equity" discipline, (ii) agency costs are not significantly higher for cooperative firms than for family-controlled firms, (iii) operating expenses increase with vertical integration for non-cooperative firms. One striking result is that contrary to non-cooperative firms, performance does not increase with vertical integration for cooperatives while agency costs remain low albeit vertical integration. One explanation is that agency costs may be seen as necessary expenses for success of vertical integration and cooperatives may not fill this requirement.

Key-words: agency costs, vertical integration, governance, cooperatives, wine business

JEL Codes: G320, D230, Q130

French wine business is a unique sector to consider issues raised by agency theory. One reason relies on the pervasiveness of specific organizational forms such as family-controlled firms and cooperatives. A second reason relies on the diversity of vertical integration strategies. This research focuses on how these two widely recognized determinants of agency costs (Boland et al. 2008) affect agency costs and firm performance.

Jensen and Meckling (1976) have renewed the corporate finance theory in considering agency costs of different capital structures. Among them, the firm managed by the full owner can be considered as the "zero-agency cost" case. Ang Cole and Lin (2000) proposed to use this reference point as a way to assess the magnitude of agency costs of different ownership structures. Ang, Cole and Lin stressed the particular place of small business as a field of research in the debate, since the zero-agency cost firms are mainly SMEs. The same is true for agribusiness plus a distinction, the importance of cooperatives aside familial firms or public firms. Boland et al. (2008) apply this approach in considering the role of ownership structure in performance (ROE) for agrifood firms.

Agency costs encompass three types of costs: the monitoring costs, the bonding costs and the residual loss. The Ang, Cole and Lin's methodology focuses on this last type of agency costs. These costs arise from inefficiencies which are not avoided by adoption of governance mechanisms such as monitoring. Following these authors, it is common to consider two proxies of agency costs: the operating expenditures – the expenditures which are the most subject to managerial discretion - and the asset turnover ratio (see Florackis and Ozkan 2009, Singh and Davidson 2004 and Fleming et al. 2005). The first proxy comes from a direct interpretation of Jensen and Meckling's approach of inefficiencies because of perk consumption by the managers and, more generally, excessive expenses due to a lack of managerial efforts. The second proxy comes from the expected behavioral bias of managers toward excessive investments. To assess agency costs' magnitude, the empirical literature uses these two proxies as dependent variables and ownership structures as explanatory variables. Multivariate regressions are estimated using ownership structure, external monitoring, capital structure, industry effects, annual sales and age of firm as explanatory variables. In our research, we follow a similar approach and adapt it to agribusiness by adding cooperatives as a specific ownership structure and considering interactions with vertical integration strategies.

Vertical integration is an old topic for agribusiness which has been reconsidered in the mid-1990s by agribusiness scholars (King et al., 2009). Hendrikse and Bijman (2004) provide a conceptual approach of vertical integration which shows that vertical integration is directly related to the dependence of one agent to the specific skills from other agent. For this reason, we can state that managerial entrenchment is pervasive in vertically integrated organization "by essence". As a result agency costs may increase with vertical integration. The French wine business is particularly complex with numerous firms at each stage of the agrifood chain. Since managers can find diverse partners in their supply or demand side, complexity leaves room for diverse integration strategies, from bulk wine sold to "negociants" to bottle for consumer markets.

Recognizing ownership structure and vertical integration as essential features of organizational architecture of agribusiness enterprises, our research is a first attempt to consider agency costs of ownership structure and vertical integration together. Our research is based on three assumptions:

(i) 100% family-controlled firms (and managed by a family member) display the lowest agency costs, as they are the most similar to the Jensen and Meckling's zero agency cost base case (Ang, Cole and Lin 2000) – note that this assumption contradicts some of the agency literature outcomes arguing that agency costs in family-controlled firms can be especially high because of a lack of market discipline, higher exit costs and greater conflict resolution costs (Boland et al 2008);

(ii) cooperatives, as vaguely defined property structures (Cook, 1995), should display higher agency costs than non-cooperative firms;

(iii) vertical integration, as an answer to market imperfections and contractual hazards (Hendrikse and Bijman 2002, Joskow 2005), leaves room for managerial discretion and thus agency costs.

In this aim, we use an original database, the *"Enquête sur les determinants de la performance des enterprises viti-vinicoles françaises"* (*Survey on the determinants of French wine firms' performance*) including information on strategy, marketing, finance as well as financial data on 210 French wine firms. The data had been collected through a survey completed by the managers of the firms in a series of one hour face-to-face interview. This information has been merged with a financial database (Diane) which covers the years 1996 to 2005. We obtain 1120 observations.

Our measure of operating expenses slightly differs from the Ang, Cole and Lin's approach to adapt the analysis to French accounting. Our ownership structure variable distinguishes the family-controlled firm, when the family manager owns more than 98% of the firm, from the firms where equity and management are separated and cooperative firms. The vertical integration variable is based on the proportion of bulk wine production on total production. We categorize the firms in three groups, non-vertically integrated when the bulk wine production is higher than 60% of total production (the remaining production is bottles or Bag In Box, i.e. the final product bought by consumers), fully integrated firms when bulk wine represents less than 1,5% of total production and an intermediate category when bulk wine production is between the two thresholds. We control marketing expenses, innovation efforts, size, localization, years and fixed effects.

This paper is organized as follow. In the first section we present the data. In the second data we discuss the results and then we conclude.

I. Data and methodology

a. Sample

The *Survey on the determinants of French wine firms' performance* is an attempt to capture strategic data on a sample representative of the French wine agribusiness (firms which process or bottle wine with sales superior to 3 millions of Euros), composed by about 850 firms. The sample encompasses 210 wine firms. We obtain a final sample of 180 firms which provides full data on the variables considered in our research.

b. Variables

The database provides us with a clear view of key organizational variables which are:

- the ownership structure, with the distinction between cooperatives and non-cooperatives, and, among the non-cooperative firms, a direct question on the capital structure, "does the manager's family own more 98% of the firm?"
- the proportion of wine sold in bulk or in bottle;
- the marketing effort by a question on the marketing expenses in percentage of sales for the main products.

Ownership structure is a qualitative variable with three items, owner managed firms, non-owner managed firms and cooperatives. Vertical integration is also a qualitative variables made up with the proportion of wine sold in bulk or bottle. We differentiate the less downstream involved firms selling more than 60% of their production in bulk wine, from an intermediate category, for which bulk wine represents between 1.5% and 60% of their sales and the more downstream involved firms selling more than 98.5% of their wine in bottles.

In our methodology, these variables are the explanatory variable. The main dependent variable is operating expenses, a quantitative variable. Ang, Cole and Lin's methodology is based on US financial statements which make them define operating expenses as total expense less cost of goods sold, interest expense and managerial compensation. French financial statements do not enable us to compute cost of goods sold. However, we can observe an item very close to operating expenses in the French income statement, the *"autres achats et charges externes"*, which encompasses expenses other than raw materials, wages, amortization and taxes. To make it simple, we consider it as operating expenses and scale them by sales.

The second dependent variable is the ratio of EBITDA on sales. There should not be differences between the EBITDA and *EBE*, which is the equivalent in French financial statements.

c. Descriptive analysis

A descriptive analysis of our sample shows that owner-managed firms are smaller than non-(fully) owner managed firms, as sales are of about 11 millions of Euros for bottling firms while they reach 35 and 45 millions of Euros for partially and fully bottling firms respectively in the case of non-owner managed firms. Cooperatives display different figures. If the less

downstream involved cooperatives are smaller than owner-managed firms, the bottling cooperatives are much higher with average sales equal to about 1.5 times the sales of owner-managed firms for partially bottling firms and twice for fully bottling firms.

Table 1. Ownership structure, vertical integration and sales

Governance	Vertical Integration	Sales 2004 (thousands of Euros)	
		Mean	St Dv.
Owner-manager	Bulk wine … > 60%	21782	13346
	Bulk wine 1,5%< … <60%	11160	2959
	Bulk wine … < 1,5%	11040	2231
Non-owner manager	Bulk wine … > 60%	28069	11194
	Bulk wine 1,5%< … <60%	35340	9210
	Bulk wine … < 1,5%	45558	20030
Cooperative	Bulk wine … > 60%	7481	753
	Bulk wine 1,5%< … <60%	16680	2812
	Bulk wine … < 1,5%	23627	7762

N=180 obs.

In the table 2, we compute the operating expenditures for each ownership structure and vertical integration feature. This shows that operating expenditures increase with vertical integration for non-cooperative firms. For cooperatives we see a difference only for fully bottling cooperatives and the spread remains smaller for them than for non-cooperative firms. Moreover it seems that operating expenditures are lower for non-owner managed firms than for owner managed firms. This would contradict our first assumption: the owner managed firms would not be the zero-agency cost reference point.

Table 2. Ownership structure, vertical integration and operating expenditures

Governance	Vertical Integration	Operating Expenditures scaled by sales	
		Mean	St Dv.
Owner-manager	Bulk wine … > 60%	0,0891	0,0049
	Bulk wine 1,5%< … <60%	0,1527	0,0059
	Bulk wine … < 1,5%	0,1811	0,0149
Non-owner manager	Bulk wine … > 60%	0,0530	0,0046
	Bulk wine 1,5%< … <60%	0,1391	0,0065
	Bulk wine … < 1,5%	0,1698	0,0163
Cooperative	Bulk wine … > 60%	0,1140	0,0125
	Bulk wine 1,5%< … <60%	0,1031	0,0042
	Bulk wine … < 1,5%	0,1425	0,0118

N=1215 obs.

Table 3 presents performance (EBITDA scaled by sales) according to firms' governance and vertical integration. The more downstream involved firms display higher performance for all governance type but we do not observe significant differences between the different ownership structures.

Table 3. Ownership structure, vertical integration and performance

Governance	Vertical Integration	EBITDA scaled by sales	
		Mean	St Dv.

Owner-manager	Bulk wine … > 60%	0,0507	0,0050
	Bulk wine 1,5%< … <60%	0,0448	0,0048
	Bulk wine … < 1,5%	0,1144	0,0159
Non-owner manager	Bulk wine … > 60%	0,0307	0,0058
	Bulk wine 1,5%< … <60%	0,0549	0,0037
	Bulk wine … < 1,5%	0,0725	0,0248
Cooperative	Bulk wine … > 60%	0,0558	0,0044
	Bulk wine 1,5%< … <60%	0,0524	0,0039
	Bulk wine … < 1,5%	0,0888	0,0232

N = 1215 obs.

d. Control variables

Our analysis needs a certain number of control variables. One important point is to avoid considering intangible expenses necessary to market access and agency costs of vertical integration. This is one disadvantage of using the "French" income statement: the item *"autres achats et charges externes"* includes advertising, fees for participating to trade fairs… To tackle this problem, we use the proportion of advertising and promotion costs expenses (scaled by sales) in the multivariate regression.

One determinant point of wine firms is the area from where they operate. Indeed, if a certain number of "negociants" operate wines from different "*appellation*", most of wine firms are SMEs embedded in their local community and which keep a regional specialization. Moreover, the reputation of *appellations* is very different from one region to one other. Compare for example Bourgogne or Bordeaux, with a very strong reputation everywhere in the world, and Languedoc which keeps an image of low-quality mass producing region albeit strong qualitative efforts. This may impact the marketing effort of individual firms. Moreover, supply chains present regional specificities which are related to the characteristics of *terroir*, their proximity with consumer markets and path dependency. This is even truer for cooperative. As a result, we introduce the region of origin of the firms (*bassin viticole*) as a control variable.

Moreover, we control years' effect in introducing dummies as well as fixed effect.

The need for controlling variables and isolating the effect of vertical integration and governance effects appeals to a multivariate analysis (GLM analysis). We present the results in the next section.

II. Results

a. Operating expenditures

We display the results of our first regression in the table 4. The dependent variable is "operating expenditures scaled by sales" and the explanatory variables come from the interaction between governance and vertical integration, two discrete variables. We use a GLM regression. The analysis includes 1138 observations (firm-years).

As expected, control variables have highly significant effect. The *region of origin* plays a role in the operating expenditures as well as the marketing efforts.

Explanatory variables play a highly significant effect on operating expenditures. In other words, ownership structure as well as vertical integration is determinants of operating expenditures. According to our methodology, the reference point should be the least-downstream-involved owner-managed firms. In this perspective, vertical integration implies about 6% (percentage of sales) agency costs for the first step and 9% for a full integration. Unexpectedly, it appears that non-owner managed firms display lower agency costs. This difference vanishes for firms in the intermediate vertical integration category but remains for fully integrated firms. The striking fact here is that non-owner managed firms display lower agency costs than owner-managed firms. This contradicts our firs assumption.

Cooperatives do not display higher agency costs than owner managed firms. Fully integrated cooperatives display 4% higher agency costs than non-integrated owner-managed firms. This remains lower than the 9% higher agency costs displayed by fully integrated owner managed firms. In other words, agency costs increase less with vertical integration for cooperative firms than for non-cooperative firms.

Table 4. Ownership structure, vertical integration and agency costs

		Operating expenditures (on sales)
Ownership structure	*Vertical Integration*	
Owner-manager	Bulk wine 1,5%< … <60%	0,0596***
	Bulk wine … < 1,5%	0,0888***
Non-owner manager	Bulk wine … > 60%	-0,0468***
	Bulk wine 1,5%< … <60%	0,0417***
	Bulk wine … < 1,5%	0,0656***
Cooperative	Bulk wine … > 60%	0,0122
	Bulk wine 1,5%< … <60%	0,0065
	Bulk wine … < 1,5%	0,0435***
Marketing effort		0,0040***
Sales		0,0000***
Wine Area		-0,0028**
Years		0,0011
Fixed effect		0,0000
Constant		-2,1927
Number of obs		1138
F(13, 1124)		39,19
Prob > F		0,0000
R-squared		0,0866

b. Performance

To go further in the interpretation of results, we apply the same multivariate analysis in considering a standard performance variable, the EBITDA scaled by sales. It appears that fully integrated firms display higher performance for non-cooperative firms while fully integrated cooperative do not. Performance increases monotonically with vertical integration for non-owner managed firms while intermediate firms display a lower performance for owner managed firms.

Table 5. Ownership structure, vertical integration and performance

		EBITDA (on sales)
Ownership structure	*Vertical Integration*	
Owner-manager	Bulk wine 1,5%< … <60%	-0,0275**
	Bulk wine … < 1,5%	0,0488***
Non-owner manager	Bulk wine … > 60%	-0,0226**
	Bulk wine 1,5%< … <60%	0,0164**
	Bulk wine … < 1,5%	0,0462***
Cooperative	Bulk wine … > 60%	-0,0039
	Bulk wine 1,5%< … <60%	-0,0026
	Bulk wine … < 1,5%	0,0305
Marketing effort		-0,0020***
Sales		0,0000**
Wine Area		0,0056***
Years		0,0011
Fixed effect		0,0000
Constant		-2,1238
Number of obs		1138
F(13, 1124)		11,07
Prob > F		0,0000
R-squared		0,0681

In light of these results, agency costs are a performance determinant among others. Although they increase with vertical integration they do not impede higher performance for fully integrated firms. The case of cooperatives is ambiguous: do they fail to implement successful integration strategies or do they allocate the surplus to the cooperative members through higher prices for wine grapes? If the first explanation prevails, it may lead us to consider agency costs as intangible expenditures necessary to performance. And cooperatives would fail to perform successful integration since they do not incur these expenditures…

III. Conclusion

The econometric analysis displays highly significant results:

(i) Operating expenses are about three percent lower for firms with outside equity. This contradicts our first assumption and the Ang, Cole and Lin's outcomes. Family-controlled firms may be subject to agency problems partly solved by the "outside equity" discipline.

(ii) Operating expenses are not significantly higher for cooperative firms than for non-integrated family-controlled firms. Moreover, they are lower for cooperatives in regard to the most advanced firms in vertical integration.

(iii) Operating expenses increase with vertical integration for non-cooperative firms: they are about 5% higher for integrated firms than for non-integrated ones. This may be interpreted as an increase of agency cost with vertical integration.

For a better understanding of these results, we investigate how these variables are related to profitability (operating income scaled by sales). Although the econometric analysis provides significant and stable results, we see that profitability is less sensitive than operating expenses to our set of explanatory variables. This is an argument in favour of the Ang, Cole and Lin's methodology to investigate the relationship between organizational forms and agency costs. The main outcome of the analysis is that profitability increases with vertical integration except for cooperatives. This may show that the benefits of vertical integration for non-cooperative firms outweigh the agency costs. Moreover, cooperatives do not appear as less profitable than non-cooperative firms except for those fully involved in vertical integration. This somehow contradicts our first outcome showing that agency costs do not increase with vertical integration for cooperatives, unless that these agency costs are seen as necessary investments for profitability. In this perspective, agency costs can be seen as intangible investments other than marketing and innovation necessary for success of vertical integration. Our results show that French wine cooperatives may fail on this point.

References

Ang J.S., R.A. Cole. and J.W. Lin (2000) ''Agency Costs and Ownership Structure.'' Journal of Finance 55:81–106.

Boland M.A., B.B. Golden. and L.J. Tsoodle (2008) "Agency Theory in Food Processing." Journal of Agricultural and Applied Economics 40:623–634

Cook M.L. (1995) "The Future of U.S. Cooperatives: A Neoinstitutional Approach". American Journal Of Agricultural Economics 77:1153–1159.

Fleming, G., Heaney, R. and McCosker, R., "Agency costs and ownership structure in Australia", Pacific-Basin Finance Journal, Vol. 13, 2005, pp. 29-52.

Florackis C., Ozkan A. (2009) "The Impact of Managerial Entrenchment on Agency Costs: An empirical Investigation Using UK Panel Data". European Financial Management, Vol. 15, No. 3, 2009, 497-528.

Hendrikse, G., and J. Bijman (2002) "Ownership Structure in Agrifood Chains: The Marketing Cooperative." American Journal of Agricultural Economics 84: 104–119.

Jensen, M. and W. Meckling. 1976. "Theory of the firm: managerial behaviour, agency costs and ownership structure," Journal of Financial Economics 3: 305-360.

Joskow P.L. (2005) "Vertical Integration", in Handbook of New Institutional Economics, C. Ménard and M. Shirley (eds.), Springer, Dordrecht, The Netherlands. 2005: 319-348.

King P.R., Boehge M., Cook M.L. and Sonka S.T. (2010) "Agribusiness economics and management" American Journal of Agricultural Economics 92(2): 554–570.

Singh, M. and Davidson, W. N. (2004) "Agency costs, ownership structure and corporate governance mechanisms", Journal of Banking and Finance, Vol. 27, 2004, pp. 793-816.