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# Profitability in the Italian Wine Sector: An Empirical Analysis of Cooperatives and Investor-Owned Firms

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***Abstract*** *This study compares the profitability of cooperatives and investor-owned firms in the Italian wine sector. From a review of the financial ratios that have traditionally been applied in previous studies, we identify the key factors that affect firm profitability (proxied by sales growth) and analyse them for the five-year period from 2008 to 2012. Italian wine cooperatives offer a particularly suitable environment in which to apply our study because they have benefitted from EU regulation and several supporting measures since 2008, allowing them to invest in infrastructure and improve efficiency in order to produce quality wine, grow their brands, and penetrate export markets. In particular, this study expands the body of knowledge on this topic by focusing on the factors that affect the profitability of cooperatives and investor-owned firms and by considering time series data. We find that the EU support measures for cooperatives have led to an increase in their financial performance since 2008. Moreover, cooperatives typically have lower liquidity levels and significantly high debt as a proportion of net equity compared with investor-owned firms. Hence, consistent with the findings in the literature, the influence of financial performance on profitability is clearly related to business type.*

***Key words*** Wine sector, cooperative, investor-owned firm, profitability, financial ratio

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## 1. Introduction

Cooperatives, 'autonomous association[s] of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprise' (International Co-operative Alliance, 2012), provide an 'important contribution … to global socio-economic development' (United Nations, 2001). This form of business arrangement is characterised by two primary characteristics: (i) the particular relationship between owners that extends beyond that of investors and (ii) democratic control (i.e. one member, one vote) irrespective of the monetary involvement in the cooperative.

Although people associate together based on a common business interest, location, shared professional goals and objectives, need for social interaction, or the exploitation of common resources, the most important goal of cooperatives is to maximise profit to grow the businesses of all members, especially the poorest. Indeed, one major advantage of cooperatives is that 'all individual members can contribute, even with small amounts of money, to finance activities in terms of loan or equity, overcoming the problem of the accumulation of capital owned by few entrepreneurs as in a limited company' (Bonazzi and Iotti, 2014). In this respect, cooperatives have helped producers in many countries improve their livelihoods (Mellor, 1980; Stevens and Jabara, 1998).

From the perspective of worldwide production, we can understand the relevance of cooperatives for the stability and development of the financial market. The European Union Support for Farmers' Cooperatives

Report in 2012 underlined the particularly pivotal role of cooperatives in the development of the agricultural sector, where the average market share of all agricultural cooperatives in the EU is 45% (see Bijman and Hanisch, 2012). Furthermore, in the context of the present study, wine cooperatives make a significant contribution, especially in Italy, the world's leading wine producer with an output of 44.9 million hectolitres in 2012 compared with 44.1 million hectolitres for France (International Organization of Vine and Wine, 2013)[1]. Italy's glowing reputation as a wine producer is based on it offering the greatest variety of types, ranging through nearly every colour, flavour, and style imaginable. The Italian wine sector is also heavily diversified in terms of the structure and characteristics of wine companies, which are often relatively small family holdings each employing few workers that are involved in both production and sales.

*Table 1.* Global wine production (2008–2012)

| | Italy | France | Spain | Germany | Portugal | UE | U.S. | Argentina | Australia | Chile | South Africa | ROW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | HI (milions) | | | | | | |
| 2008 | 47.0 | 42.7 | 35.9 | 10.0 | 5.7 | 160.8 | 19.3 | 14.7 | 12.5 | 8.7 | 10.2 | 268.8 |
| 2009 | 47.3 | 46.3 | 36.1 | 9.2 | 5.9 | 164.9 | 22.0 | 12.1 | 11.8 | 10.1 | 10.0 | 272.2 |
| 2010 | 48.5 | 44.4 | 35.4 | 6.9 | 7.1 | 155.8 | 20.9 | 16.3 | 11.4 | 8.8 | 9.3 | 264.5 |
| 2011 | 42.8 | 50.8 | 33.4 | 9.1 | 5.6 | 158.6 | 19.2 | 15.5 | 11.2 | 10.5 | 9.7 | 267.4 |
| 2012 | 43.8 | 41.2 | 32.5 | 9.0 | 6.3 | 147.9 | 20.5 | 11.8 | 12.7 | 12.6 | 10.6 | 258.2 |
| 2013E | 44.9 | 44.1 | 40.0 | 9.0 | 6.7 | 163.9 | 22.0 | 15.0 | 13.5 | 12.8 | 11.0 | 281.0 |
| Chg. 12_13 | 2.5 | 7.0 | 23.2 | 0.0 | 6.8 | 10.8 | 7.3 | 27.2 | 6.6 | 2.1 | 3.8 | 8.8 |

Source: OIV, note de conjoncture m

Another feature of this sector is that it is dominated by two types of business organisations: investor-owned firms (IOFs) and cooperatives. Although the characteristics of cooperatives (e.g. democratic control, the equal vote and equal participation of management, capital accumulation for the benefit of members) differ from those of IOFs, both types of businesses must ensure their ongoing financial stability (Ijere, 1978). However, while Italian wine cooperatives have almost 70% market share, their inefficient decision-making processes and capital constraints restrict financial performance (Cook, 1995; Karantinis and Nilsson, 2007). Nevertheless, they have benefitted from new EU regulation and several supporting measures that have allowed them to invest in infrastructure and improve efficiency in order to produce quality wine, grow their brands, and penetrate export markets[2].

Based on the foregoing, the present study compares the profitability of Italian wine cooperatives and IOFs over a five-year period (2008–2012). We use sales growth as a measure of profitability in order to capture that cooperatives do not aim to maximise members' equity capital but rather maximise the price of the goods paid to members and select three financial ratios for the analysis. The rest of the paper is organised as follows. Section 2 reviews the literature on the financial performance of cooperatives, particularly wine cooperatives. Section 3 discusses the methodology and describes the data. Section 4 presents the results of the empirical research and Section 5 concludes.

[1] In Italy, total wine sales in 2013 were 24.1% higher than their 2008 level, exports 40.4% higher, and domestic sales 10.7% higher, confirming the trend of the past six years (with the exception of 2009). Similarly, revenues for the wine sector in 2012 were up 7.7% on 2011 (exports up 9.3%, domestic sales up 6.1%), outperforming the food and drinks sector as a whole (which was up 2%) and the beverages industry specifically (up 4.6%), whereas the Italian manufacturing industry overall shrank by 2.1%.

[2] Wine cooperatives have been indirectly affected by the 2008 reform of the Common Market Organization (CMO). This reform intended to ensure that production meets demand and to eliminate overproduction in order to enhance the competitiveness of European wines in the world market. An important aspect of the new CMO is that a 'national envelope' has been allocated to each member state to create individual support plans that better fit the particularities of each country. Another important policy scheme is the 'grubbing up' programme.

## 2. Literature review

A number of studies over the past 20 years have criticised cooperatives for their inefficient decision-making processes and capital constraints (e.g. Cook, 1995; Karantinis and Nilsson, 2007), which subsequently lower their financial performance in comparison with IOFs. To examine corporate performance, previous authors in this field have typically compared the financial ratios of cooperatives and IOFs (Binion, 1998; Ozudogru, 2004; Akono *et al*., 2005; Carlberg *et al*., 2006; Surmeli, 2006; Arslan, 2007; Banaszak, 2007; Boyd *et al.,* 2007; Gurung and Unterschultz, 2007; Laziková *et al*., 2008; McKee, 2007, 2008; Pashkova *et al*., 2009; Lerman and Parliament, 1990; Barton *et al*., 1993; Baourakis *et al*., 2002; Kenkel *et al*., 2002; Soboh *et al.,* 2009). Examples of the financial ratios used include liquidity, asset size, risk (measured by the standard deviation of return on equity), asset-to-equity ratio, net profit margin, asset turnover, the times interest earned ratio, and total assets (McKee, 2007). Sergaki and Semos (2006), for instance, find that the efficiency of cooperatives and IOFs depends on firm size, leverage, business risk, and profitability, Li *et al*. (2014) use profit margin, asset turnover, the liquidity ratio, solvency, and the effective interest rate, and Shermain and Vikas (2007) analyse agricultural cooperatives and IOFs in the United States by applying profitability, liquidity, leverage, and asset efficiency, demonstrating that cooperatives present lower asset efficiency and leverage than IOFs.

With particular reference to the wine sector, studies have, for example, focused on the failure rates of US wineries in the periods 1940–1985 (California) and 1973–1990 (Missouri) (Swaminathan and Delacroix, 1991), while others have studied the French wine industry, including wine cooperatives, from the point of view of added value or such measures as accounting profit and remuneration (Cadudal and Couderc, 2008; Couret, 2006). Bianchini *et al.* (2008) compare wine cooperatives in Umbria and Languedoc-Roussillon based on sales development, average sales price, share of total sales, added value, and average remuneration of members (per hectolitre and per hectare). Declerck and Viviani (2012) assess the ability of wineries to overcome the financial crisis by applying total sales, sales growth, leverage, and the EBIT growth rate and find that cooperatives perform worse than IOFs.

As Sexton and Iskow (1993) highlight, the use of financial ratios presents some constraints when applied to cooperatives. In fact, financial measures such as return on equity and profit margin do not seem to be relevant for evaluating the profitability of cooperatives given that their goal is not to maximise members' equity capital. Given the foregoing, the following analysis compares the profitability of Italian wine cooperatives and IOFs over a five-year period (2008–2012) in order to identify the most influential financial ratio. Therefore, based on the analysis recently presented by Declerck and Viviani (2012), we use sales growth to measure profitability and test its correlation with the following three financial ratios to examine differences between cooperatives and IOFs.

*Solvency*

The solvency ratio indicates whether a company's cash flow is sufficient to meet its short-term and long-term liabilities, focusing more than liquidity ratios on the long-term sustainability of a company. In other words, solvency ratios identify going concern issues. Solvency has previously been used as a significant variable to explain the financial performance and profitability of agricultural cooperatives (Baourakis *et al*., 2002; Boyd *et al*., 2007; Hailu *et al.,* 2005; Featherstone and Al-Kheraiji, 1995).

*Liquidity*

Liquidity ratios measure the capacity of firms to repay debts and use cash flow efficiently. Liquidity is thus used to assess the performance of cooperatives (Barton *et al*., 1993; Kenkel *et al*., 2002; Richards and Manfredo, 2002; Boyd *et al*., 2007) and is a significant variable for determining profitability (Dorsey and Boland, 2009; Boland *et al*., 2008; Schumacher and Boland, 2005).

*Efficiency*

Efficiency ratios analyse how well a company uses its assets and liabilities internally. Efficiency is another key factor in the profitability of cooperatives (Schrader *et al*., 1985; Parliament *et al*., 1990; Boyd *et al*., 2007, McKee, 2007).

## 3. Methodology and data

In order to evaluate how the financial ratios described in Section 2 influence the profitability of cooperatives and IOFs, we apply two methodologies: (i) a descriptive statistics analysis using the means test applied to the three examined financial ratios and (ii) a multiple regression model that considers profitability (i.e. sales growth) to be an endogenous variable.

The regression equation can be represented econometrically as:

$$\text{PROFITABILITY} = \alpha + \beta_1 \text{ LIQUIDITY} + \beta_2 \text{ SOLVENCY} + \beta_3 \text{ EFFICIENCY} + \beta_4 \text{ COOP} + \varepsilon \quad (1)$$

The four vectors are calculated in the following way:

- LIQUIDITY is the ratio of current operational profitability measured by earnings before interest, taxes, depreciation, and amortisation (EBITDA) divided by interest
- SOLVENCY is the ratio of the total borrowing dividend to net equity
- EFFICIENCY is measured by fixed asset turnover (net sales dividend divided by average net fixed assets)
- COOP is a dummy variable that is coded 1 if the analysis is on a cooperative and 0 otherwise

Our analysis differs from the regression models applied in the literature (Boyd *et al.,* 2007; McKee, 2007; Declerck and Viviani, 2012). In this study, the empirical model is applied to explain the statistical relationship between the profitability of cooperatives and IOFs based on different explanatory variables and a time period after the introduction of the new EU regulation and support measures. Specifically, we examine the five-year period from 2008 to 2012.

Using time series data that can explain how the EU regulation and support measures for agricultural cooperatives affect their profitability represents a significant improvement on the existing literature on this topic. Nevertheless, the financial data necessary for our research were difficult to obtain. As explained in the Introduction, the Italian wine sector is characterised by small family-owned companies that may not allow public access to their financial statements. Indeed, our direct requests for financial data from these private companies were frequently unanswered.

Hence, we derived financial data from the Mediobanca Wine Industry Survey (2014) that considers all Italian companies with a turnover in 2012 above €25 million in order to create a sample that could be compared. These companies in 2012 generated sales totalling €5.4 billion, representing an estimated 60% of total production (which in 2012 was estimated to be around €9.1 billion) and 57.6% of exports (worth €4.7 billion). From the Mediobanca database, we selected 33 cooperatives and 72 IOFs that operate in the Italian wine sector, leading to financial information on 525 firm-year observations. Distinct data were aggregated for cooperative and Italian IOFs, and we calculated our variables based on these aggregated financial data rather than using the financial ratios provided by the Mediobanca report.

## 4. Results

First, we compare the profitability, liquidity, solvency, and efficiency of cooperatives and IOFs in the study period. Table 2 shows that the effect of the EU support measures improved the profitability of cooperatives after 2008 as well as the liquidity and solvency ratios. Thereafter, all the financial ratios presented a decrease in 2012 owing to the negative influence of the financial crisis on consumer behaviour.

*Table 2.* Financial performance of cooperatives and IOFs, 2009–2012

| | Cooperatives | | | | Investor Owned Firms | | | |
|---|---|---|---|---|---|---|---|---|
| | Profitability | Liquidity | Solvency | Efficiency | Profitability | Liquidity | Solvency | Efficiency |
| **2009** | -0.028 | 2.536 | 1.442 | 0.445 | -0.029 | 5.863 | 0.585 | 0.291 |
| **2010** | 0.016 | 3.823 | 1.405 | 0.418 | 0.071 | 8.462 | 0.562 | 0.302 |
| **2011** | 0.090 | 4.395 | 1.349 | 0.446 | 0.093 | 7.853 | 0.564 | 0.323 |
| **2012** | 0.084 | 3.743 | 1.344 | 0.478 | 0.074 | 6.726 | 0.603 | 0.333 |

These results suggest that the EU's efforts to increase the financial performance of wine cooperatives have been successful. Moreover, comparing these ratios for cooperatives and IOFs allows us to note the superiority of the financial performance of the latter even though the profitability trend is the same for both groups. Table 3 provides the summary statistics.

*Table 3.* Summary statistics of cooperatives and IOFs, 2008–2012

| | Cooperatives | | | Investor Owned Firms | | |
|---|---|---|---|---|---|---|
| | Observations | Mean | Std. Dev. | Observations | Mean | Std. Dev. |
| **Profidability** | 33 | 0,032 | 0,052 | 72 | 0,042 | 0,053 |
| **Liquidity** | 33 | 3,408 | 0,832 | 72 | 6,495 | 1,917 |
| **Solvency** | 33 | 1,449 | 0,150 | 72 | 0,601 | 0,054 |
| **Efficiency** | 33 | 0,357 | 0,201 | 72 | 0,250 | 0,141 |

These statistics clarify the differences in financial performance between these two types of entities. Although the profitability of IOFs is similar to that of cooperatives (average sales growth ratios for the two are 0.032 and 0.042, respectively), liquidity, solvency, and efficiency show significantly different effects. Average cooperative liquidity is 3.4 compared with 6.5 for IOFs, while their standard deviation is smaller as well, suggesting that cooperatives typically have lower liquidity levels compared with IOFs. Moreover, cooperatives have an average solvency ratio of 1.5 compared with 0.6 for IOFs with a higher standard deviation, showing that cooperatives tend to have significantly high debt as a proportion of net equity compared with IOFs.

In the next step, we estimate financial performance by using a regression model and the application of F-statistics and T-statistics to test for the significance of these effects. Table 4 presents the measures of the parameter estimates, standard errors, and hypothesis tests.

*Table 4.* Regression results for cooperatives and IOFs, 2008–2012

| *Regression Statistics* | |
|---|---|
| R | 0,7964 |
| $R^2$ | 0,6343 |
| Standard error | 0,0405 |
| F | 2,1679 |
| F Significance level | 0,2091 |

| *Variables* | *Parameter* | *Standard Errors* | *Stat t* | *T Significance level* |
|---|---|---|---|---|
| Intercept | 0,1822 | 0,2650 | 0,6874 | 0,5224 |
| Liquidity | 0,0282 | 0,0127 | 2,2268 | 0,0765 |
| Solvency | -0,4237 | 0,3485 | -1,2156 | 0,2784 |
| Efficiency | -0,2770 | 0,2427 | -1,1414 | 0,3054 |
| Coop | 0,4670 | 0,3274 | 1,4263 | 0,2131 |

The regression model highlights the significant influence of the financial ratios on profitability and the importance of business type (cooperative or IOF). The coefficients of liquidity, solvency, efficiency, and coop are different from zero, while the $R^2$ of 0.6343 means that the selected variables explain 63% of the variability in the dependent variables and the F-test value of 2.1679 is an indication of a significant regression.

The parameter estimates show that an increase in liquidity results in higher profitability. This result is inconsistent with those of previous studies because we use different a financial ratio (EBITDA) to calculate liquidity as this better corresponds to the characteristics of cooperatives. Further, we find that liquidity influences profitability positively and, in accordance with the literature, there is evidence of a negative

relationship between solvency/efficiency and profitability. Increasing solvency by one unit (caused by more borrowing) decreases profitability by 42%, while increasing efficiency by one unit (caused by higher total assets) decreases profitability by 27%. Consistent with previous findings, this influence of financial performance on profitability is clearly related to business type (cooperatives present a positive coefficient of 0.467).

The results of the analysis present the main differences between cooperatives and IOFs in the Italian wine sector. As the Mediobanca report (2014) highlights, 'cooperatives lack many of the upstream production phases represented in the filière, because shareholders transfer the grapes and wine to the cooperative for processing and sale'. For this reason, cooperatives have fewer fixed assets than other companies and a lower level of capitalisation. Moreover, cooperatives have high debt because their specific legal status demands particular forms of financing. These features explain the more negative effect of solvency (debt) and efficiency (fixed assets) on their profitability compared with IOFs.

## 5. Conclusion

The present study investigated and compared the profitability of cooperatives and IOFs in the Italian wine sector between 2008 and 2012 to capture the introduction of the several recent EU supporting measures that have allowed cooperatives to invest in infrastructure and improve efficiency in order to produce quality wine, grow their brands, and penetrate export markets. Methodologically, we used sales growth as a proxy of profitability and assessed its correlation with three significant financial ratios (liquidity, solvency, efficiency).

The presented analysis showed that the EU support measures for cooperatives have led to an increase in their financial performance since 2008. Moreover, although the profitability of IOFs and cooperatives is similar, liquidity and solvency are different. Cooperatives typically have lower liquidity levels and significantly high debt as a proportion of net equity compared with IOFs. Further, liquidity was shown to influence profitability positively, while we found a negative relationship between solvency/efficiency and profitability. Hence, consistent with the findings in the literature, the influence of financial performance on profitability is clearly related to business type.

This study expands the body of knowledge on this topic by focusing on the factors that affect the profitability of cooperatives and IOFs and by considering time series data to explain the effect of the EU regulation and support measures for agricultural cooperatives. Nevertheless, a major limitation of this research is that the sample data were composed by aggregating the firm-level observations of both cooperatives and IOFs effectively weighted by firm size. Therefore, future studies should aim to focus on the analysis of the years since 2012 and on including a larger number of observations.

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