



Estimation of future levels and changes in profitability: The effect of the relative position of the firm in its industry and the operating-financing disaggregation

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ABSTRACT

In this paper we examine how the relative position of a firm's Return on Equity (ROE) in industries affects the predictability of the next-year ROE levels, and the ROE changes from year to year. Using Nissim and Penman breakdown into operating and financing drivers, the significant role of the industry factor is established, although changes in signs suggest subtle non-linear relations in the drivers. Our study avoids problems originating from negative signs by analyzing sorts and by making new regressions with disaggregated second-order drivers by signs. This way, our results provide evidence of some different patterns in the influence of the first-level drivers of ROE (the operating factor and the financing factor), and the second-level drivers (profit margin, asset turnover, leverage and return spread) on future profitability, depending on the industry spread. The results on the role of contextual factors to improve the estimation of future profitability remain consistent for small and large firms, although adding some nuances.

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Estimación de niveles y cambios de rentabilidad futura: el efecto de la posición relativa de la empresa en su sector y la desagregación de la rentabilidad en operativa y financiera

RESUMEN

En este trabajo examinamos si la posición relativa del ROE de la empresa en el sector afecta a la estimación del nivel de ROE en el año posterior, y a la estimación de su variación. Empleando el desglose operativo-financiero de Nissim y Penman, encontramos que el factor sectorial es significativo, aunque las variaciones de los signos sugieren la presencia de relaciones no lineales. Nuestro trabajo evita los problemas generados por los signos negativos en los ratios al emplear cuantiles y realizar regresiones independientes para los diferentes signos que toman las variables. De esta forma, los resultados muestran diferentes patrones en el impacto de los inductores del ROE de primer nivel (los factores operativo y financiero) y de segundo nivel (margen de resultados, rotaciones de los activos, endeudamiento y diferencial de rentabilidad) sobre la rentabilidad futura, dependiendo del diferencial de rentabilidad con respecto al sector. Estos resultados, con alguna matización, se vuelven a encontrar cuando se controla por tamaño diferenciando entre empresas pequeñas y grandes.

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Introduction

In Economic Theory it is generally assumed that profitability is mean-reverting. The intuition behind this assumption is simple: competitive forces will cause a correction of very high or very low profitability over time. Empirically, prior research provides

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evidence on the mean reversion at firm level (Fama & French, 2000) and forecast accuracy of different mean reverting models (industry models vs. economy-wide models in Fairfield, Ramnath, & Yohn, 2009).

The estimation of future profitability is still an inconclusive research line to which we attempt to contribute twofold, conceptually and methodologically. Conceptually, we focus on the effect on next-year profitability of a new driver: the relative position of the firms' ROE levels in respect to their industries' benchmarks. In doing so, we connect accounting analysis research on profitability persistence with a vast line of strategic management literature concerned with the measurement and quantification of the relative importance of industry and firm-specific effects on firm performance.

In this sense, the aim of the present study is to analyze if the relative position and sign of the firms' ROE with respect to the industry add relevant information about future levels and changes of ROE.

Then, we examine if considering the relative contributions of operating activities and financing activities to total profitability improves forecasts of levels and changes in profitability one year ahead. Thus, the second part of the work refers to whether the fundamental decomposition of ROE proposed in recent analytical accounting research (Feltham & Ohlson, 1995) though adding the industry-relative factor is useful in a forecasting context, in the line of Nissim and Penman (2001), Fairfield and Yohn (2001), and Fairfield et al. (2009).

But the above mentioned empirical studies using disaggregated ratios on the study of profitability persistence are affected by biased samples. As ratios are computed using accounting items that can be either positive or negative, the interpretation of the ratios' signs could be spurious. Trying to avoid confusing results and serious errors in the interpretation of coefficients, samples are restricted to firms with positive items. Hence, the previous literature has focused mainly in the operating drivers of profitability, neglecting the effects of the financing activities over ROE. In fact, most firms with positive ROE have positive operating profitability, and nearly all have both positive profit margin and positive asset turnover. However, this is not so in respect to the financing activities and their disaggregated drivers.

In order to avoid the problems originated from negative signs, first we make a portfolio analysis to obtain a reflection of non-linearities in the operating and financing drivers of next-year profitability, what addresses our new regressions on disaggregated second-order profitability drivers by signs. This constitutes our methodological contribution. This way, we are in a position to establish a third hypothesis concerning whether the second-level decomposition of profitability factors is useful in forecasting future profitability.

Using an international sample (UK, Germany, France and Spain), extracted from the Worldscope database, for the period 1981–2008, we perform several groups of Fama–MacBeth regressions to test our proposed linear forecasting models. Our results confirm that disaggregating profitability into firm and industry information is useful in forecasting future levels and changes of profitability. Furthermore, both portfolio analysis and regressions provide evidence of different patterns in the influence of the first-level drivers of ROE (the operating factor and the financing factor) and the second-level drivers (profit margin, asset turnover, leverage and return spread) on future levels and changes of profitability, across the different industry-relative settings of profitability. Our results on the role of industry-relative factors to improve the estimation of future profitability maintain consistency for all sizes of firms but microcaps, though adding some nuances.

As the main contribution to the extant literature, this study provides robust empirical evidence on the usefulness of incorporating industry-relative information to improve forecasts of future levels and changes of profitability. The second main contribution of this

study concerns the separate effects on profitability persistence, not only from the operating and the financing activities of the firm, but also from the second-level drivers of Nissim and Penman's (2001) disaggregation, thanks to innovative methodology consisting of the complementary use of portfolio analyses and the disaggregation of explanatory variables by signs to be used in the Fama and MacBeth regressions.

Considering that assumptions about future firm-level profitability play an important part in several strands in accounting and finance, such as financial statement analysis, firm valuation, investment policies, risk management and asset pricing (e.g. Vuolteenaho, 2002). Our results are of interest to investors, financial analysts, business assessors, and practitioners in general. But in view of the joint proposal of the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) of requiring the presentation of disaggregated statements based on operating and financing activities (FASB, 2008; IASB, 2008), our work supports the usefulness of this disaggregation, in a wider extent of firms (by including those firms with negative accounting items in the sample) and analyzes the effect of financing factors on future profitability in a more detailed way.

The remainder of the paper is organized as follows: Previous evidence section reviews the related literature and develops our hypotheses on the effect of several factors on future profitability. Research design section builds empirical models. Sample and Descriptive Analysis section discusses the sample and variable definitions and provides descriptive statistics on the main variables. Results and conclusions sections follow.

Previous evidence

Previous empirical studies support the hypothesis that firm profitability is mean reverting in a competitive environment. Higher profitability firms draw the attention of other competitors and new entrants push the erosion of profits.¹ Thus, in the extremes, the mean values of ROE are found more transitory (Freeman, Ohlson, & Penman, 1982) and earnings changes are stronger, the effect being more intense for declined earnings (Fama & French, 2000) indicating non-linear relations in US markets. Evidence shows that mean reversion in profitability is also present in European markets (Allen & Salim, 2005, in UK; Altunbas, Karagiannis, Liu, & Tourani-Rad, 2008 in 15 European countries) but the results on the non-linearities of the reversals are not conclusive.

Concerning the relative importance of contextual factors on the firms' performance, there is a consolidated stream of research in strategic management. In it, the objective of discovering the relative importance of industry and firm-specific effects to firm performance, measured by several different formulations of profitability, has obtained conclusive results (Bowman & Helfat, 2001; Hough, 2006; Misangyi, Elms, Greckhamer, & Lepine, 2006). Though partially averted by characteristics of the statistical techniques used, by the sample of years, countries, industries, and firms included and by the classification scheme used to specify industries (Elgers, Porter, & Xu, 2004; Hough, 2006), prior evidence has documented unequivocal contribution of the industry effect over the firm profitability.

Since the seminal studies of Magee (1974), Schmalensee (1985), and Rumelt (1991) to date, several factors have been mentioned as reasons for the industry effect. Structural common forces provide firms within an industry with a potential for revenue generation (Kini, Mian, Rebello, & Venkateswaran, 2009). Thus, factors such as the government monetary policy (Magee, 1974), the protection

¹ A recent work of Li et al. (2011) documents lower future ROE in more competitive industries.

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