

Review on doctoral dissertation*

The author of the dissertation:	Jurica Vukas
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The title of the Ph.D. dissertation:	Valuation of Non-Financial Corporations in the Republic of Croatia
Committee in charge:	Ljiljana Vidučić chair; Mira Dimitrić mentor; Ivica Pervan
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The doctoral dissertation successfully defended by Jurica Vukas consists of 7 chapters (225 pages), a list of references used (18 pages), a list of tables and figures (4 pages) and appendix (20 pages). An abstract in English is added at the end of the appendix. The dissertation is written in Croatian.

By thoroughly and methodically studying and critically weighing the scientific achievements in the field of enterprise valuation, author provides successful and well-formed evaluation model, which is through an empirical examination thoroughly analyzed and interpreted. Integrating macroeconomic forecasting models of economic growth in the valuation model represents a significant shift from the existing research work in this field.

Valuation of companies listed on Zagreb Stock Exchange represents particular challenge during the time of economic crises and volatile financial markets. The complete economic cycle should be taken into consideration in the valuation process with special emphasis on the modification of discounted cash flows with the results obtained from factor model of nowcasting. The results of nowcasting method are the forecasts of economic growth in the current quarter and year based on the series of macroeconomic indicators. The estimation of GDP dynamics are attained prior to the official announcement of macroeconomic indicators. By implementation the macroeconomic forecasting models, valuers could obtain solid inputs of valuation models what is presented on the sample of Croatian companies. The aim of the doctoral thesis is achieved by incorporating the factor nowcasting model into model of free cash flow to the corporation. Modified model of free cash flow to firm could successfully accomplish precise valuation of companies; therefore avoiding potential huge oscillation of prices on stock market. Testing the efficiency of Croatian stock market resulted in the rejection of semi-strong and strong version of efficient market hypothesis. The author has also shifted the focus of research in corporate valuations in developed countries to evaluate corporations in developing countries and countries in transition. The results of efficiency tests are additional

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argument for implementation of complex valuation model as well as of stricter supervision of insider information flows. Abnormal returns of analyzed stocks were realized prior to the public announcement of positive business information what should be the clear signal of trading based on insider information.

Nowcasting technique, based on the factor model, presented in this dissertation, is of inestimable value to identify the state of the economic cycle, especially on the eve of change each stage of the economic cycle, which can significantly affect the valuation of the corporation and, consequently, the market price of shares of a corporation.

The author proved that the values of Croatian companies obtained by modified model of free cash flow indicate the distance of the market and intrinsic value of a corporation in early 2011. Magnitude distance of market and intrinsic values depends on the observed branch of the economy. Construction sector is extremely overpriced, while the shipping sector is slightly overestimated. On the other hand, most of the analyzed stocks in the food sector are undervalued. So, one can't talk about general overvaluation of capital markets and each sector and the corporation should be treated separately. The author reviews the reasons for this overestimation or underestimation.

In the first chapter of the dissertation, "*Introduction*", author defines the problem of the research, explains the importance and topicality of the problems investigated with respect to the trends that have been observed in recent national and international research. Following a quality review of relevant scientific advances, he defines the purpose, scientific and practical research goals. The main hypothesis of the dissertation is that evaluation process can be formulated as the application model of discounting cash flows, taking into account the macroeconomic cycles and branches determinants, which contributes to a better evaluation of the companies, and adequate investment decisions.

The second chapter entitled "*Theoretical approaches to corporate valuation*" gives an overview of models present in the literature as well as in practice, pointing out the advantages and disadvantages of different models as a basis for upgrade valuation models that will be applied to Croatian companies. The most used traditional valuation models analyzed in this chapter are: income approach, market or relative indicators approach, net value of assets approach and the combined approach.

The third section "*Impact of macroeconomic variables on valuation of corporations*" shows the impact of macroeconomic cycles on enterprise valuation. This section shows the importance of projecting economic and business cycles in the evaluation of companies to obtain a realistic valuation. It defines economic cycles and their characteristics, determines the macroeconomic and market indicators from credit and money markets and the stock markets, commodities and

foreign exchange markets, which may change as defined in the valuation model inputs, significantly increasing or reducing the value of the company.

In the fourth part of the dissertation entitled “*Analysis of financial statements as a starting point of valuation*” research subject are the basic financial statements. Analysis of the financial statements gives answer on corporate performance comparing companies in the same sector, which are listed on the capital market. Business analysis of Croatian corporations during the economic expansion as well as taking into account the results achieved during the recession points to the dependence of corporate performance on the economic cycle.

The fifth section “*Formulation of mezzo-economic valuation model*” formulated valuation models for selected branches. The first part of this chapter lists the specifics of corporations’ valuation in developing countries in order to present the underlying framework of evaluation Croatian companies. The second part of the chapter explains the criteria for selecting the Croatian companies in evaluation process. Then, author analyses Croatian companies from construction, shipping and food sector, defines the cost of capital for Croatian corporations and finally evaluates selected companies.

In the sixth part of the dissertation entitled “*Testing the hypothesis of market efficiency*” is tested the hypothesis of market efficiency in order to prove whether it is worth semi-strong and strong versions of the efficient market hypothesis in the Croatian capital market. The first part of the chapter presents a methodological framework, which carries out research and previous research on market efficiency. The second part of the chapter describes the attitude of the market price of Croatian corporations and their intrinsic value, which proves overvaluation Croatian companies during the economic expansion and underestimation during the recession. Volatility in the market is often a consequence of psychology of investors who are subject to the euphoria or panic, and so its market price moves away from the intrinsic value of the corporation giving the arguments on the absence of the semi-strong efficient market hypothesis. The third section tests the influence of the information published on the official market of the capital, and the performance of the stock corporation before and after the publication of important news regarding the operations of each company. This analysis is used to test the strong form of the efficient market hypothesis. Lack of semi strong and efficient market hypothesis provides an argument and justification for the study of intrinsic value through valuation model because it can serves investors and analysts as the basis of their long-term business activities.

It is achieved the purpose of the research, because it was designed an appropriate model to an effective evaluation that obtains the corresponding intrinsic value of the company. The problem of evaluating the corporations in the Croatian context, which was not clearly defined, has been given the complete solution.

The theoretical contribution of the dissertation is in proving the crucial influence of macroeconomic and business cycle in the evaluation process, and the formation of a dynamic and sophisticated pricing model.

A practical research contribution is in the application of branches valuation model, which has expanded the use of applicative valuation methodology to specific industries and specific areas of economic evaluation. With such model a rational investor may assess at any time whether the company is overvalued or undervalued in the market and on the basis of such an analysis can make rational investment decisions. Testing of semi-strong version of the efficient market hypothesis in the Croatian capital market which shows the impact of fundamental analysis on the market value of domestic shares, and the testing of the strong version of the efficient market hypothesis, which proves whether is the trade based on insider information, also give practical scientific contributions in the area of previously unexplored domestic corporations valuation.

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