

ARE THE EARLY-WARNING METHODS USEFUL FOR PREDICTION OF ECONOMIC CRISIS OF POLISH STOCK-LISTED WOOD COMPANIES? (1)

Justyna Biernacka
Warsaw University of Life Sciences (SGGW), Poland

Abstract

Are the early-warning methods useful for prediction of economic crisis of polish stock-listed wood companies? (1). It is risky decision whether to invest in a selected stock-listed company. Each stock market investor consider numerous conditions while making share purchase decisions. Besides the basic methods of economic condition analysis, such like economic indicator analysis and the technical analysis, there are a number of different methods based on the discrimination analysis; such methods evaluate bankruptcy option for the company involved, and they make it with a considerable probability. There are many of early-warning methods. Altman's 83 and Holda's polynomials applied in calculations are useful in stock-listed wood companies analysis. Both of polynomials are similar shape course. In both cases of analysing companies applied polynomials suggests, that in last quarters of analysis economic condition of this wood sector companies getting worse. It could help potential investor take decision to invest or not to invest in this companies.

Key words: early warning methods, bankruptcy prediction, wood sector companies.

Introduction

It is always a risky decision whether to invest in a selected stock-listed company. Each stock market investor should consider numerous conditions while making share purchase decisions. The economic indicator analysis and the technical analysis are the tools used most frequently for the economic and financial status evaluation. Besides, there are a number of different methods based on the discrimination analysis; such methods evaluate bankruptcy options for the company involved, and they produce results with a considerable probability. Most of this models have a polynomial structure, using several indicators. Value of global indicator suggests one of several classification groups – bankruptcy hazard or no bankruptcy hazard.

1. Models and study

Among numerous early warning models based on polynomial formula, the following models deserve special attention:

a). the Altman's 83 model (developed in the U.S., in 1983):

$$Z_{83} = 0.717x_1 + 0.847x_2 + 3.107x_3 + 0.420x_4 + 0.998x_5,$$

where:

$x_1 = (\text{current assets} - \text{short-term liabilities})/\text{total assets},$

$x_2 = (\text{mandatory capital} + \text{reserve capital})/\text{total assets}$

$x_3 = \text{profit and loss account before taxes and interest payment (EBIT)}/\text{total assets}$

$x_4 = \text{entity book value}/\text{total liabilities book value},$

$x_5 = \text{sales receipts} - \text{remaining operating income}/\text{total assets}.$

b). the Holda's model (developed in Poland):

$$Z_H = 0.681x_1 - 0.0196x_2 + 0.00969x_3 + 0.000672x_4 + 0.157x_5 + 0.605,$$

where:

$x_1 = \text{current assets short-term liabilities},$

$x_2 = \text{total liabilities}/\text{total assets} * 100\%,$

$x_3 = \text{net profit and loss account}/\text{yearly average assets} * 100\%,$

$x_4 = \text{average short-term liabilities} / (\text{sold products cost} + \text{sales costs} + \text{overhead costs}) * 360,$

$x_5 = \text{sales receipts}/\text{yearly assets values}.$

Classification to the appropriate group of bankruptcy risk are shown on figure 1.

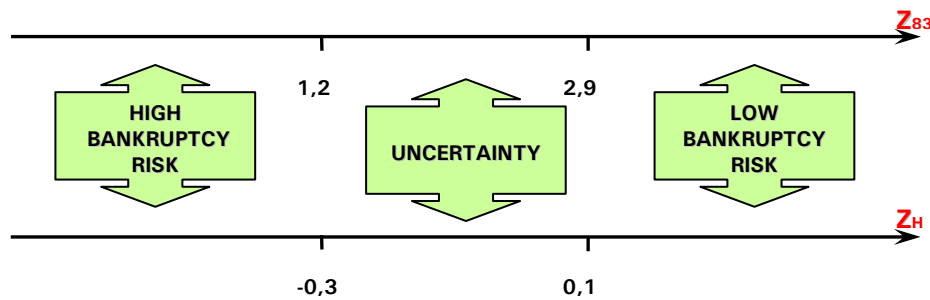


Fig. 1. Graphic illustration of classification to the bankruptcy risk group

In this paper two representative wood stock-listed Polish companies were tested – Forte SA and Paged SA. Quarter data from financial reports were used, from 1st quarter 2004 to 2nd quarter 2006. Received values for companies are presented in tables (1 and 2) and shown in figures (2 and 3).

2. Companies characteristic

Forte SA is one of the top furniture producers in Poland. The company is listed on Warsaw Stock Exchange since 1996. Forte SA was formed from government-owned company – furniture factory created in 1976. Most of production is exported – Forte's production goes to over 30 countries and over 60% of its production goes to West Europe, especially Germany. Since 2005 Forte's production goes to British, Irish, French, Spanish and Portuguese market.

Company has got 5 manufactures in Poland (in Ostrow Mazowiecka, Suwalki, Bialystok, Hajnowka and Przemysl), one in Ukraine and one in Russia.

Paged SA at present is a main part of Paged Capital Group, which consists of: Paged Handel (Paged Trade), Paged Meble (Paged Furniture) and Paged Sklejka (Paged Plywood). Paged SA, just like Forte SA, was formed from government-owned company – Centrala Handlu Zagranicznego "Paged" (Central Office of Foreign Trade "Paged"), which has exported wood products (wood, sawn wood, plywood, particleboard and others), furniture and paper products and imported cellulose and machines for industry. The company was quoted for the first time on the Warsaw Stock Exchange in 1996.

Table 1. Values of Altman's 83 and Holda's polynomials for Forte SA

Quarter	1 2004	2 2004	3 2004	4 2004	1 2005	2 2005	3 2005	4 2005	1 2006	2 2006
Z ₈₃	1,297	1,634	1,666	1,877	1,789	1,647	1,568	1,495	1,471	1,386
Z _H	1,130	1,817	1,694	1,644	1,659	1,532	1,361	1,369	1,372	1,265

Source: author's own calculations

Table 2. Values of Altman's 83 and Holda's polynomials for Paged SA

Quarter	1 2004	2 2004	3 2004	4 2004	1 2005	2 2005	3 2005	4 2005	1 2006	2 2006
Z ₈₃	1,422	1,416	1,588	1,530	1,399	1,529	1,611	1,741	1,640	1,620
Z _H	1,116	1,171	1,342	1,216	1,164	1,232	1,238	1,252	1,228	1,191

Source: author's own calculations

3. Results

Diagram 1 analysis allows to determine that shapes of Altman's 83 and Holda's polynomials curves are similar.

Values of Altman's 83 and Holda's polynomials suggest, that there is no bankruptcy risk for Forte SA, but in both polynomials (cases) retrograde tendency is observed. Clearly downward nature of the Z₈₃ values can be seen in the beginning of 2005, decrease of Z_H values are noted down since 2nd

quarter 2004 to last analysed quarter. Lowest polynomials values are noted only in the beginning and the end of analysed period, especially in 1st quarter 2004 (adequately – Altman's value: 1,297 and Holda's value: 1,130) and in 2nd quarter 2006 (adequately: 1,386 and 1,265). Tendencies in both polynomials that economic situation of this enterprises is getting worse, but they do not suggest bankruptcy risk.

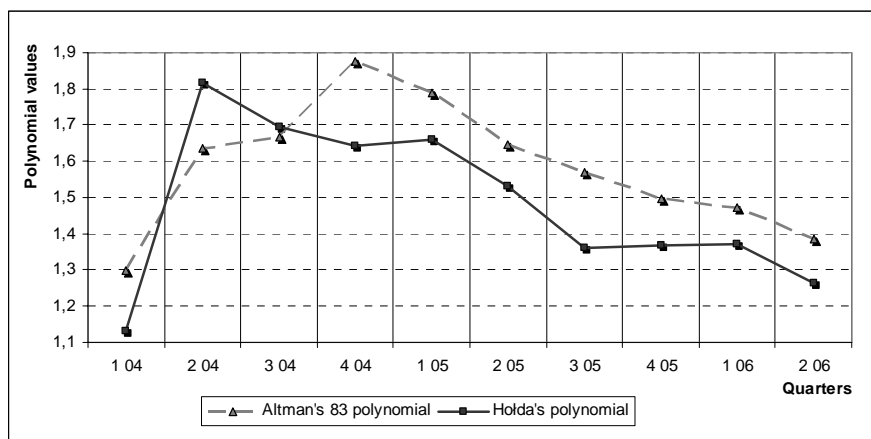


Fig. 2. Quarter values Altman's 83 and Holda's polynomials for Forte SA (2004 – 2006)

Similar shapes of Altman's 83 and Holda's polynomials curves are observed not only in Forte's case (?). Lowest Altman's 83 polynomial values are observed in 1st quarter 2004 (adequately: for Altman's 83 polynomial: 1,422, for Holda's polynomial: 1,116), in 1st quarter 2005 (adequately: 1,399 and 1,164) and in last quarter of analyzed period (adequately: 1,620

and 1,191). Probably, the parameter, which keep polynomials values at stable level is a fact, that economic and financial results do not depend considerably on export results in Paged's case. The main recipients of Forte's products are West Europe countries so, all decreases of export and EUR/PLN currency rate generated profit decrease from sale.

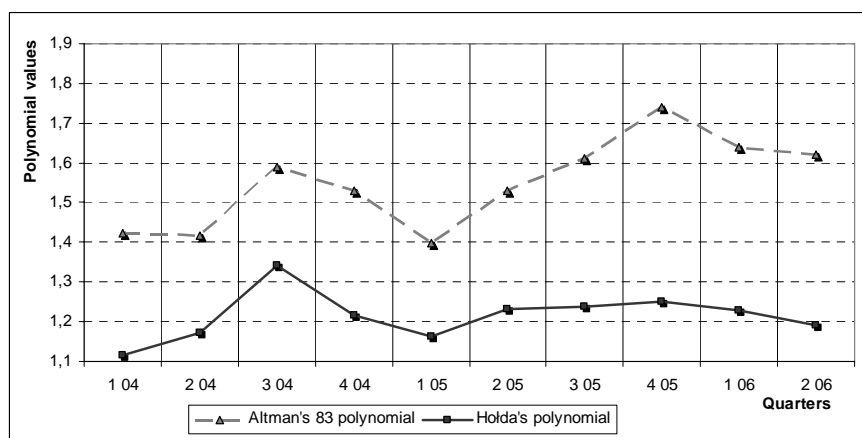


Fig. 3. Quarter values Altman's 83 and Holda's polynomials for Paged SA (2004 – 2006)

Conclusions

Analysis of Altman's and Holda's polynomial values of stock-listed Polish wood companies suggest, that the companies situation after Polish accession to the EU in 2004 got worse. It could be, that main negative factor was necessity of competition with better equipped foreign companies. Another negative factor, especially for Forte SA, was unfavourable EUR/PLN exchange rate and difficulties in wood products export to West Europe. Polynomials values decreasing shows, that stock crisis, not

only in Warsaw Stock Exchange, could in nearest future mean economic crisis.

Reference:

1. ZALESKA M., 2002: Ocena ekonomiczno – finansowa przedsiębiorstwa przez analityka bankowego, Wyd. SGH, Warszawa;
2. PRUSAK B., 2005: Nowoczesne metody prognozowania zagrożenia finansowego przedsiębiorstw, Wyd. Difin, Warszawa
3. <http://www.forte.com.pl/>
4. <http://www.paged.pl/struktura/1>