Influence of mergers and acquisitions on the default risk of the acquiring firm

Abstract: The influence of the presence of free cash flow at the discretion of the managers on the change in the default risk of the acquiring firm after the merger and acquisition is investigated in this paper. The factors affecting default probability after the merger are analyzed using Merton distance to default model.

Keywords: mergers and acquisitions, Merton distance to default, free cash flow theory

During the last 20 years a significant increase in the merger and acquisition activity can be observed in the world economy. This paper investigates the effect of merger and acquisition on the default risk of the acquiring firm and the factors affecting default probability after the merger. The following reasons exist for the examination of the influence of the merger and acquisition on the default risk of the acquiring firm. First, default risk is one of the principal risks to be considered by each firm since default event leads to the waste of tangible and intangible assets and brings significant losses to the firm [1]. Secondly, most of papers devoted to the risk of the firm in the context of mergers and acquisitions examine the effect of merger on other risk measures, while disregarding the influence of M&A on firm’s probability of default. The only study which has analyzed the default risk in the context of financial firms’ merger and acquisition is the paper by Vallascas and Hagendorff [8] devoted to the impact of European bank mergers on bidder default risk. Using Merton distance to default model Vallascas et al. [8] show that bidder default risk is not affected by average bank merger but for safe banks there is an increase in default risk after the merger. In contrast to the paper of Vallascas et al. [8] this research extends the analysis using the firms from non-financial industries and examines the application of the free cash flow theory by Jensen [5] on the change in the default risk of acquiring firm after the merger.

We hypothesize that mergers and acquisitions increase the default risk of the acquiring firm and that the presence of free cash flow in the acquiring firm is one of the important factors leading to the increase in the default risk after the merger. The free cash flow theory is presented in conjunction with mergers and acquisitions in the papers by Jensen [5], Martynova and Renneboog [7], Harford [3], Gugler et al. [2] etc. According to Jensen [5] there exists a conflict of interests between shareholders and managers of the firm, in which the latter in case of the presence of excess funds at their discretion prefer to invest it in operations to enjoy the perquisites [6], while the former are interested in the distribution of free cash flow in form of dividends. The research by Harford [3] and Gugler et al. [2] report that the agency cost of free cash flow lead to the increase in merger and acquisition wave, which are value destroying. From the analysis of this theoretical and empirical literature one can presume that the excess of funds at managers’ discretion allows them to act in their own interests and invest in risky and value destroying projects, especially since they are released from external due diligence [2; 3; 7]. Thus, the free cash flow hypothesis explanation for the change in the default risk following...
the merger and acquisitions is particularly important because it is the type of agency cost which induces mergers and acquisitions and at the same time gives managers more discretion.

Using the sample of 394 cross-border and domestic deals completed between 1990 and 2009 from Thomson Reuters Datastream and Thomson One Analytics databases we estimate the effect of free cash flow on the default risk of the acquiring firm by running the regression with distance to default as the dependent variable.

The hypothesis of the negative effect of free cash flow on the default risk of the firm after the merger was tested in this paper using the regression analysis with the depended variable the change in the industry-adjusted distance to default after the merge for the estimation of which we employ the following model was constructed:

$$
\Delta \text{ADD}_{t+1} = \alpha + \beta_1 \log(FCF) + \beta_2 \text{Profit Margin} + \beta_3 \text{Leverage} + \beta_4 \text{Size} + \\
+ \beta_5 \text{ROA} + \beta_6 \text{Tobin's Q} + \beta_7 \text{Creditor rights index} + \beta_8 \text{Creditor rights index} \times \\
\times \log(FCF) + \gamma \text{Contol variables} + \delta \text{Deal - level Variables} + \theta_1 \times D92 + ... + \theta_8 \times D08 + \varepsilon
$$

The results of the regression analysis are presented in table 1. Based on the test of the presence of heteroscedasticity the robust standard errors were used in the regression analysis. The results confirm the hypothesis of the presence of negative effect of free cash flow on the change in industry-adjusted distance to default after the merger. The presence of management-equity problem is also confirmed by the significance of profit margin, which is positively related to the change in distance to default after the merger. Among the financial characteristics of the acquiring firm leverage has negative significant effect on distance to default, while acquirer return on assets and size haven’t. The target leverage, the difference in the GDP per capita and size of the target and acquiring firm are at the same time insignificant. Concerning the deal characteristics, there is no significant effect of geographic and product diversification on the change in distance to default following the merger, while for tender offers industry-adjusted distance to default decreases after the takeover, and for cash deals it increases after merger and acquisition. The creditor rights are negative and significant only in a few model specifications, while the effect of strength of shareholder right is significant and negative almost in all model specifications: the stronger are the rights of the shareholders, the lower is the distance to default after the merger. Furthermore, for Scandinavian legal origin countries the effect of merger on the change in distance to default is lower than for countries from other legal origins. Last but not least, the effect of agency cost of free cash flow is present only for the acquiring firms with high growth opportunities (high q firms).

In conclusion it is worth mentioning that this research does not claim to be indisputable and universal solution of the given problem, connected with the analysis of the effect of mergers and acquisitions on the default risk of the acquiring firm. While in this paper the most attention is devoted to the investigation of the effect of agency cost of free cash flow on the change in the distance to default, the examination of debt-equity agency cost and information asymmetry influence on the default risk of the firm is of great interest. Moreover, it could be valuable to estimate the effect of the corporate governance regime on the strength of merger and acquisition effect on the change in the default risk of the firm. Nevertheless, the current research can be used in addition to the existing literature on effect of mergers and acquisitions on the risk of the acquiring firm.
factors and its results can be valuable in business practices and for the creditors as the guidelines in evaluation of the effect of the transaction on the default of the firm.

Table 1. – Change in distance to default following the merger (1992 – 2008)

| VARIABLES                                      | 1       | 2       | 3       | 4       | 5       | 6       | 7       |
|------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| log(FCF)                                       | -0.0908 | -0.272**| -0.143**| -0.522* | -0.172**| -0.158  | -0.171**|
| Profit Margin                                   | 0.168***| 0.210***| 0.202***| 0.203***| 0.221***| 0.224***| 0.224***|
| Multiple Bidders                                | -0.00477| -0.0448 | -0.0794 | -0.0803 | -0.0696 | 0.299   | -0.0196 |
| Tender Offer                                    | -0.877**| -0.718* | -0.726**| -0.680  | -0.771**| -1.232**| -0.794**|
| Cash Payment                                    | 0.801** | 0.765** | 0.822** | 0.780** | 0.804** | 0.654   | 0.773** |
| Hostile Acquisition                             | 0.198   | 0.267   | 0.191   | 0.200   | -0.433  | -0.746  | -0.499  |
| Horizontal Acquisition                          | -0.0417 | -0.164  | -0.0563 | -0.0839 | -0.173  | -0.147  | -0.145  |
| Source of funds - common stock                  | 0.0583  | 0.239   | 0.367   | 0.441   | 0.665   | 0.514   | 0.660   |
| Source of funds - debt                          | -0.218  | -0.0366 | -0.214  | -0.233  | -0.275  | 0.111   | -0.159  |
| Source of funds - corp funds                    | 0.119   | 0.464   | 0.461   | 0.484   | 0.493   | 0.687   | 0.452   |
| Cross-Border                                    | 0.239   | 0.385   | 0.372   | 0.435   | 0.274   | 0.376   | 0.279   |
| Initially low risk                              | -1.314***| -1.379***| -1.363***| -1.395***| -1.270***| -1.511***| -1.199***|
| Difference in GDP p.c.                          | 0.243   | 0.0843  | 0.0831  | 0.0263  | -0.296  | -0.228  |
| French Legal Origin                             | 0.355   | 0.167   | 0.199   | -0.0230 | -0.400  | -0.236  |
| German Legal Origin                             | -0.0224 | -0.161  | -0.0980 | -0.270  | -0.611  | -0.341  |
| Scandinavian Legal Origin                       | 1.431***| 1.293   | 1.268*  | 0.804   | 1.381*  | 0.793   |
| Creditor rights Index                           | -0.396**| -0.154  | -0.0626 | 0.0665  | -0.0837 |
| log(FCF)* Creditor Rights                      | 0.0729  | 0.0386  | 0.0504  |
| Shareholder rights Index                        | -0.480**| -0.599* | -0.507* | -0.502  | -0.429  |
| log(FCF)* Shareholder rights                   | 0.0874  |
| Leverage                                        | -0.0412*| -0.0700**| -0.0410 |
| Acquiror ROA                                    | 0.341   | -1.315  | 0.323   |
| size                                            | 0.106   | 0.0110  | 0.0824  |
| Tobin’s Q                                       | -0.00517| -0.128  |
| Difference in Size                              | 0.166   |
| Constant                                        | 1.098   | 1.764*  | 2.653** | 3.314** | 2.311   | 4.489***| 2.271   |
| Observations                                    | 394     | 370     | 370     | 370     | 354     | 354     | 354     |
| R-squared                                       | 0.167   | 0.199   | 0.200   | 0.207   | 0.215   | 0.259   | 0.215   |
| Model df                                        | 30      | 35      | 34      | 37      | 39      | 40      | 40      |
| Loglikelihood                                   | -882.7  | -819.0  | -819.0  | -817.3  | -782.7  | -608.0  | -760.8  |
| R2 adj                                          | 0.0977  | 0.115   | 0.118   | 0.118   | 0.120   | 0.135   | 0.112   |

*** p<0.01, ** p<0.05, * p<0.1

Robust standard errors in parentheses
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