



APPLICATION OF SURVIVAL ANALYSIS FOR LOAN DATA

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In recent years banking plays a significant role in the growth of the countries. One of the most important services of the bank is to provide the loans to their clients for different purposes. However, determining probability of default on repayment of a loan is one of the main problems in banking system. Further, there are so many factors influencing the time to repayment of a loan, such as demographic factors and loan related factors which were observed at the commencement of the loan. Therefore, present study was performed in order to find out the factors influencing the time to repayment of a loan. The data were obtained from the records of Merchant bank of Sri Lanka (MBSL) in Kurunegala District for the period covers from January 2010 to December 2015. In this study, Kaplan-Meier method was used to estimate the survival curves and log rank test was used to compare the significance of differences in the survival curves for each risk group. Further, Cox proportional hazard (Cox PH) model was applied to model the right censored data. Based on the results from the log rank test and Cox PH analysis, it was concluded that age, loan experience, marital status, purposes of loan and types of loan were highly associated with the time to repayment of a loan while gender was moderately associated with the time to repayment of a loan. Furthermore, it was observed that risk of default for unmarried person and leasing loan are higher than that for married person and personal loan, respectively. In addition, risk of default for business loan and consumer loan are higher than that for investment loan. Banks should be provided a particular importance on these factors to reduce the probability of default on repayment of a loan.

Keywords: *Kaplan-Meier method, Log-rank test, Cox proportional hazard model, loan repayment time*