To Lend or not to Lend, that is the Question

Grow up, go to school, get married, buy a house and start a family. This is the path that one may call traditional, but the way one tends to accrue a substantial amount of debt. Buying a car, starting a business and applying for your first mortgage are common examples which are on the tip of most peoples tongues. But can the average person afford each of these luxuries, usually not. The solution, apply for a loan.

With each of these decisions, comes an inherent risk and lenders, whether they be your peers or financial institutions, weigh up these risks to determine whether a), they will in fact, offer you the loan and b), the interest rate which they will charge you for the opportunity. These risk factors include marital status, monthly income, profession and are used to evaluate the likelihood at which the borrower will pay back their loan. Additionally, by construction it predicts the likelihood of a borrower to default. By these metrics, it is possible for the lender to outline the characteristics of attractive candidates in loan applications and to provide a quantitative metric of their profile, or credit score, which is the purpose of this paper.

By using historical Peer-to-Peer (P2P) data, consisting of 80 variables and over $14B in loans, one creates a binary variable and groups the borrowers into those that have defaulted and those that have not. The variables are slowly filtered out by relevance, correlation and segmentation analysis and suitable models are constructed to measure the impact of each of these variables. The most impactful variables are then selected, forming the basis of "The Scorecard", a summary of each borrowers risk profile.

With ever increasing financial regulations, banks and financial institutions require large amounts of capital to cover their undertaken risk, by several fold. These quantified Scorecards provide the bank or financial institution a metric to measure this inherent risk, which provides the optimum balance of expected return against expected losses, should the borrowers' default. This risk management of the Banks portfolio is in turn also to the borrowers' benefit, where it is then possible to lend to more individuals.