Calculation of Information value (IV)

This can be done in two steps. First calculate **Weight of Evidence** (WOE) for each bin. In the following example there are 6 bins—'Missing', 0, 1, 2, 3, and 4+. One can create bins for interval-scaled or continuous variables by creating intervals.

$$WOE_i = \ln\left(\frac{\% respnders_i}{\% non-responders_i}\right), \quad i = 1,2,,,,k \text{ where } k \text{ is the number of bins.}$$

In the following table $k = 6$.

Suppose there are 100 responders in the sample, then the following table shows that 5 of them are in the first bin, 5 in the second bin, 20 in the third bin, etc. Also suppose there are 1000 non-responders in the sample. According to the following table, 60 of the non-responders are in the first bin, 20 in the second, 150 in the third, etc.

Number of ATM transactions	% Responders	% non-responders	WOE	IV
Missing	0.050	0.060	-0.182	0.002
0	0.050	0.020	0.916	0.027
1	0.200	0.150	0.288	0.014
2	0.300	0.250	0.182	0.009
3	0.240	0.270	-0.118	0.004
4+	0.160	0.250	-0.446	0.040
Total	1.000	1.000		0.097

$$IV = \sum_{i=1}^{k}\left\{(\% \operatorname{Re}sponders_i - \%non-responders_i) * WOE_i\right\}$$