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Financial Ratios and the Probabilistic Prediction of Bankruptcy among Malaysian Civil Servants

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Abstract

The rising debt problem and bankruptcy among civil servants in this country is worrying. To what extent this problem is contributed by financial ratios is not empirically assured. Financial ratios and bankruptcy are two aspects that are wherefore related with one another that have received major consideration from scholars and financial advisor. Financial ratios can affect an individual, team and also organization either directly or indirectly. Changes in civil servant's financial ratios whether they achieved the minimum requirement by fulfilling only one out of three financial ratios (liquidity ratio, solvency ratio and consumer debt ratio) will affect the bankruptcy probability among them. The purpose of this study is to predict the bankruptcy probability of civil servants based on their financial ratio as a tool of objective measurement. A total of 399 civil servants from five randomly selected ministries responded to the e-survey (email based) using multistage cluster sampling technique. The results identified that around 20 out of 399 civil servants did not fulfill any of the financial ratio requirement and these are the civil servants who face higher chances of becoming bankrupt in five years' time. Apart from that, the findings of financial ratio in this study were considered fairly stable since 95 percent of the civil servants achieved the minimum requirement by fulfilling only one out of three financial ratios. It was also shown that five percent of the civil servants were identified to have bankruptcy probability. Thus, proper action should be taken through financial training, education and literacy in order to prevent unwanted scenarios in the future. Consequently, findings of this study may be used as basis to reduce financial problems and bankruptcy among Malaysian civil servants.

Keywords : Bankruptcy probability, financial ratio, liquidity ratio, solvency ratio, consumer debt ratio

1. Introduction

Managing money wisely has become a challenging task for many civil servants in Malaysia. Increase in costs of living without proportionate increase in wage forces civil servants to improve their financial standing. Failure in doing that could lead them into financial problems or difficulties. According to the Malaysian Department of Insolvency (2011), bankruptcy cases for civil servant in 2009 was 1,086 while in 2011, around 3000 civil servants were reported bankrupt (Mokhtar, Husniyah, Sabri, & Talib, 2015; Lee & Singh, 2013). Subsequently, Department of Insolvency (2013) reported that due to serious debt commitment, 1,638 civil servants declared bankrupt in 2013. An individual ends up in bankruptcy when he or she is unable to settle their overspent outstanding credit card bills, monthly installments, loans, and other payments (Razali, 2011; AKPK, 2011). According to Garner (1996), bankruptcy is one of the indicator for economic downfall. Due to this, more analyses on civil servants' financial ratios are very crucial and need to be investigated in order to prevent bankruptcy issues in future. Moreover, this issue can cause a great deal of conflict and stress to individuals and their families if they do not handle their financial matters appropriately. In short, referring to the causes of financial issues, this article aims to determine the bankruptcy probability of civil servants' in Malaysia by using the financial ratio as a tool of objective measurement.

Findings of this research will provide an indication on the bankruptcy probability among Malaysian civil servants. Meanwhile, identifying the level of financial ratio can be induced to provide relevant financial management training programs to civil servants. The appropriate financial strategies will help an individual and their family to manage their financial matters more effectively and efficiently. Moreover, it assists civil servants to balance off their accounts and keep track of their expenses regularly. The central theme is, in reality most people are aware of the importance of personal finance, unfortunately not many comprehend how to apply it in their daily lives. Therefore, this research could facilitate them in handling their personal finances sagely by setting through proper financial strategies or guidance in their daily routine.

2. Literature Review

2.1 Bankruptcy Probability

The word "bankruptcy" was taken up from the ancient Latin word "bancus", which means bench and "ruptus" meaning broken and this was symbolised the insolvency of the banker (Patrick, 2014). Meanwhile, based on Bankruptcy Act 1967, 'bankruptcy' is the condition of a debtor who is unable to pay as minimum as RM30,001 of debt (Law of Malaysia, 2006). A bankrupt individual is someone who has formally adjudged that he or she is unable to pay back their debts.

In western countries, empirical studies reported that, the number of households and debt commitment in the United States have become more extreme and have brought negative changes to the financial scenario of Americans (Warren & Tyagi, 2003; Mishel, Bernstein & Shierholz, 2009). In short, the household ratio of mortgage debt, credit card debts and hire purchase loans to family income, contributes positively to personal bankruptcy filing. Failures to settle the outstanding balance, together with poor financial management and ratios were the main contributors to bankruptcy (Department of Insolvency, 2011; Rajna, 2011).

In Malaysia, Bank Negara Malaysia (2010) reported that, the household debt to gross domestic products ratio (GDP) rose from 68.8 percent in 2006 to 76 percent in 2010. Due to these heavy household debts, it can be concluded that the number of people declared bankrupt from 2007 to 2013 were 245,000. The main factor of this incident was due to failure to pay the loan or outstanding balance (Karen, 2013). Hence, the mounting debt leading to bankruptcy affecting civil servants in the nation is a cause for concern. Based on a report from the Malaysia Department of Insolvency, 1,086 civil servants were declared bankrupt in 2009 and data revealed that around 72.74 percent of them were adult males (Marican et al., 2012). This figure has been raised up to 1,638 till June 2013 and a majority of them were from the Supportive Group 1 (Grade 17-40) followed by Supportive Group 2 (Grade 1-16) (Department of Insolvency, 2013). Likewise, within 2009 to 2013, the number of bankruptcy cases among the Management and Professional group was increased dramatically from 125 cases to 262 cases. Although it is only a fraction out of the 1.42 million civil servants, the figure is nonetheless very high since they are the highest contributors to our Gross Domestic Product (GDP). By right, they should not become bankrupt. They are the largest contributors to the country's economic development, but unfortunately they often go bankrupt due to limited exposure on financial matters (Bernama, 2013).

2.2 Financial Ratio

According to Husniyah (2009), the financial performance of an individual can be analysed by using the financial ratio. Furthermore, DeVaney (1994) and Husniyah (2009) state that the most useful predictor of insolvency statistics proven in prior research is liquidity, solvency and consumer debt ratio. Financial ratio has become a well known tool in anticipating the occurrence of bankruptcy. Additionally, in Rosdi's study, the findings revealed that personal finance ratios help to assess the financial performance of medical doctors in government hospitals in Malaysia. By using this analysis, it can further assist the respective individual on their financial decision making. Also, this can help avoid serious financial indebtedness and prevent individuals from falling into bankruptcy (Rosdi et al., 2013).

DeVaney (1994) stated that liquidity ratio is a useful tool for analysing an individual's ability to meet obligations when they are facing financial difficulty especially when their income is in a declining rate. She also mentioned that this ratio can also be used for sudden opportunities in crisis. For instance, an individual can act fast whether to draw on their liquid assets if there is an investment opportunity (DeVaney, 1994). Apart from that, the liquidity ratio compares liquid assets to monthly expenses/ expenditure. In case, the monthly expenditure data is not available, the disposable income can be used as a proxy (Rosdi et al., 2013). It has been shown that, if the liquidity ratio is equal and more than three months salary, it would be a good financial standing to the individual (Husniyah, 2009).

Equally important, the solvency ratio has also become an important ratio to measure the bankruptcy probability objectively. It compares an individual's total asset with total liability and this ratio has been used to measure the household overall financial positions. Hereby, the asset refers to financial asset and fixed asset, while liabilities comprise of mortgage debt and non-mortgage debts. As an example, outstanding balance of vehicle, unpaid bills, oustanding credit card, consumer loan and non-regular payment for monthly financial commitments. In brief, it can be interpreted that if the value of solvency ratio is one or lesser than that, the particular individual is living in an extremely risky position. Thus, immediate steps have to be adopted in order to reduce the risk which could be charged to fall into bankruptcy (DeVaney, 1994).

The key aspect discussed by DeVaney (1994) about 'Consumer Debt Ratio' specifies that the component of disposable income is devoted to the payment of outstanding balance and due to this an individual was unable to save up for the future. Despite that, the mortgage debt is not commonly included in this ratio. This is because DeVaney (1994) states, the respective mortgage is treated for investment purposes. Besides that, Husniyah (2009) clarified that, an individual needs to constitute less than 15 percent of their debts in order to present a better financial standing.

According to Rosdi et al., (2013), to date in Malaysia, there are lack of studies on personal financial management and bankruptcy using financial ratio analysis detected. For instance, in Husniyah's (2009) research, financial ratio tools were only used to measure the financial well-being of a Malaysian household and not on bankruptcy among civil servants. Thus, in this study bankruptcy probability will be measured by using the liquidity ratio, solvency ratio and consumer debt ratio.

3. Methodology

Respondents were selected through multistage cluster sampling and consisted of 399 civil servants from Putrajaya. Cluster sampling is much easier to implement than simple random sampling as it allows the estimation features of subsets (clusters) as well as the target population. Importantly, this sample was segregated to two categories which were Management / Professional and Supportive Group. The location of the study was in Federal Territory of Putra Jaya since it serves as the federal administrative centre of Malaysia. Due to time constraint, the sample were only chosen and segregated randomly into five ministries out of twenty four ministries, then followed by convenient selection of subject from each group. This technique is suitable for study which does not have a complete list of population elements (Babbie, 2008; Babbie, 2001; Groves et al., 2004). In these five ministries, each ministry was respectively representing twenty percent of the population of the total number of civil servants in Malaysia. These ministries were divided into departments. From the departments, three groups were segregated according the grade, which comprise of Management and Professional (Grade 41-54), Supportive Group 1 (Grade 17-40) and Supportive Group 2 (Grade 1-16). Consequently, three hundred ninety nine respondents were chosen to participate in this survey and the responses were coded and used for information analysis. Instrument for the study was developed by the researcher and also some of the questions were adopted from Rajna (2011).The data obtained was coded and analysed using SPSS to identify the probability that determinants of bankruptcy among Malaysian civil servants.

3.1 Research Instrument and Measurements

3.1.1 Bankruptcy Probability

The civil servants' were asked to give the estimated value on assets and liabilities, whereby the information can be used to calculate the financial ratios of the respondents. Through this, the researcher was able to identify whether the civil servant have achieved the minimum requirement by fulfilling at least one out of three financial ratios. In the event, the civil servant failed to achieve the minimum requirement, it can be conclude that they are potential victims that can fall into bankruptcy within five years time. In order to calculate the financial ratio, the following questions were adopted from Rajna (2011) and used to obtain the information that been tested. The information needed below refers to the amount of the assets/liabilities.

Table 1: Measuring the Financial Ratio (Objective Measurement)

Items
Total Asset
Total value of saving accounts
Total value of current accounts
Other (FD, money market instrument, etc.)
Unit Trust (current market value)
Amanah Saham Bumiputera / Amanah Saham National
Cash value of insurance policy
Residential properties (market value)
Value of properties for investment purpose (e.g. house, land, building ,etc)
Car (Market Value)
Shares in business
EPF / Pension
Others (Jewellery,etc.)
Monthly disposable income (Income minus compulsory deduction : kwsp, socso,zakat, tax)
Liability / Debts
Credit card debts if you do not own a credit card, please insert '0' value in the space provided)
Monthly expenses
Income tax for year 2013
Car loan balance
Personal loan balance
Overdraft loan balance
Others (study loan, etc.)
What is your opinion about this survey?

3.1.2 Liquidity Ratio

Liquidity ratio is a functional tool in analysing an individual's ability to meet obligations when faced with difficulty during periods of income decline. It can also be used for sudden opportunities in the crisis, (DeVaney, 1994). The liquidity ratio helps compare liquid assets to monthly expenses and the disposable income can be used as a proxy to monthly expenditure should the monthly expenditure data not be available (Rosdi et al., 2013).

Prior research showed that, monthly expenses consisted of the total amount average fixed and variable living expenses, including credit ot debt repayment, monthly allocation and taxes being set aside for unpredictable expenses (example, auto insurance, vacations, utility bills, gifts and others (Greninger et al., 1996). The reasonalble value of ratio would be three to four; which means liquid assets should be equal to three to four months of disposable income (Mason and Griffith, 1988; Winger and Fransca, 1993). Should the liquidity ratio be equal and more than three months, it would be a good financial standing to the individual (Husniyah, 2009). The formula for liquidity ratio adopted in this study is as shown in Table 2.

Table 2: Formula for Liquidity Ratio

Ratio	Formula	Benchmark	Source
Liquidity Ratio	Cash / Monthly Expenses or Liquid Assets / Monthly Expenses e.g. : 4500/4400 = 1.02 months	Liquidity ratio yielded a value greater than 0.25 (1/4 of a year or 3 months). 1-2 not healthy, 3-6 months- very healthy.	DeVaney (1994)

3.1.3 Solvency Ratio

The solvency ratio compares total assets with total liabilities (DeVaney, 1994) and is also used to measure a household's overall financial position. Hereby, assets refer to financial assets and fixed assets. In this matter, financial assets comprise of the total sum of cash, checking invoices, money market funds, savings, mutual trust funds, Amanah Saham Bumiputera fund, certificate of deposit, cash values of life policy and employee provident fund (EPF).

Should the value of solvency ratio be one or less than that, the particular individual is living in an extremely risky position whereby, immediate steps have to be adopted in order to reduce the risk. The formula for solvency ratio adopted in this study is as shown in Table 3.

Table 3: Formula for Solvency Ratio

Ratio	Formula	Benchmark	Source
Solvency Ratio	Total Assets / Total Liabilities e.g. : 122800/221180 =0.5	1 or below 1 is risky. More than 1 is comfortable as it can withstand any fall in the value of the assets.	DeVaney (1994)

3.1.4 Consumer Debt Ratio

The key aspect discussed about 'Consumer Debt Ratio' by DeVaney (1994) specifies that the component of disposable income is devoted to the payment of the outstanding balance and due to this an individual was unable to save up for the future. Information on civil servants liquid assets, total assets (liquid and non-liquid assets), total liabilities, monthly disposable income and expenses were asked in the questionnaire in order to calculate the consumer debt ratio. Again, an individual requires to constitute less than 15 percent in order to present a better financial standing (Husniyah, 2009). The formula for consumer debt ratio adopted in this study is as shown in Table 4.

Table 4: Formula for Consumer Debt Ratio

Ratio	Formula	Benchmark	Source
Consumer Debt Ratio	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$ e.g. : 102800/221180 = 0.46	Less or Equal To 15%. This ratio actually let an individual to know how much of their assets are financed by debt. Thus the lesser the better.	DeVaney (1994)

4. Results and Discussions

4.1 Profile of respondents

Table 5 shows the socio-demographic profile of the respondents in this study. Based on the total sample, descriptive statistic disclosed that respondents consisted of 163 male and 236 female with a total of 399 respondents. The Ministry of Education and Department of Prime Minister made up 20.8 percent of the total respondents, while the Ministry of Human Resources represented 23.6 percent of the respondents. In terms of age group, about 36.3 percent of the respondents were in the generation X group while 63.7 percent in the generation Y group. Generation X is the group of individuals who were born in the year 1969 to 1978 and aged between 36 years old to 45 years old. While generation Y are the individuals aged between 20 and 35 years old who were born in the year 1979 to 1994. In terms of marital status, 75.2 percent of the respondents were married while those singles made up of 24.8 percent. The majority of the respondents in the sample were from Management and Professional (Grade 41-54) which was 63.4 percent, followed by supportive group which was made up of 36.6 percent.

Table 5: Demographic Characteristics of Respondents

Demographic	Characteristics	n	%
Ministry	Ministry of Education	83	20.8
	Ministry of Human Resources	94	23.6
	Ministry of Finance	70	17.5
	Ministry of Health	69	17.3
	Department of the Prime Minister	83	20.8
Age/Generation	Generation X	145	36.3
	Generation Y	254	63.7
Sex	Male	163	40.9
	Female	236	59.1
Marital Status	Single	99	24.8
	Married	300	75.2
Occupational Grade	Supportive Group	146	36.6
	Management & Professional (Grade 41-54)	253	63.4

Note. n= Number of Respondents

4.2 Predicting bankruptcy probability

The financial ratios are divided into three categories namely liquidity ratio, solvency ratio and consumer debt ratio. Table 6 presents the financial ratio analysis fulfilled by the Malaysian civil servants in Putrajaya.

Table 6: Financial Ratio Fulfilled by the Civil Servants

Financial Ratio	Characteristics	n	%
Liquidity Ratio	less than 3 - Not Healthy	103	25.8
	3 and greater - Healthy	296	74.2
Solvency Ratio	1 or less - Not Healthy	87	21.8
	more than 1 -Healthy	312	78.2
Consumer Debt Ratio	more than 15% - Not Healthy	21	5.3
	less than 15%- Healthy	378	94.7

4.2.1. Liquidity Ratio

Based on Table 6, the findings showed that 296 civil servants out of 399 received a liquidity ratio of more than three times their disposable income. This reflected a good financial stability and resistance on the civil servant. Liquidity ratio in this context refers to an individual's ability to meet obligations when they are facing financial difficulty especially when their income is in decline. It also help to identify how the individual performs financially and prepare themselves to handle financial pinch comfortably in the future.

4.2.2. Solvency Ratio

On the other hand, solvency ratio measured the ability of an individual to pay off their debts (DeVaney, 1994). If the value of solvency ratio is one or less than that, the particular individual is living in an extremely risky situation. Referring to Table 6, around 78.2 percent of the civil servants had solvency ratios of more than one and this reflected a good financial standing whereby they are able to convert all assets into cash when there is an emergency situation. On the other hand, 21.8 percent of the civil servants had less than one solvency ratio which indicated that the individual is living in a critical financial difficulty or problem which can lead to bankruptcy in the long run.

4.2.3. Consumer Debt Ratio

Equally important, the majority of 94.7 percent of the civil servants (n=378) had a healthy consumer debt ratio of less than 15 percent of debt repayment that reflected the secure debt. According to Husniyah (2009), an individual should be holding at least 85 percent of the disposable income for other expenses. However, these expenses excludes debt repayment. It has been shown that the guideline is furnished to make an individual aware about their financial status rather than being continually overextended.

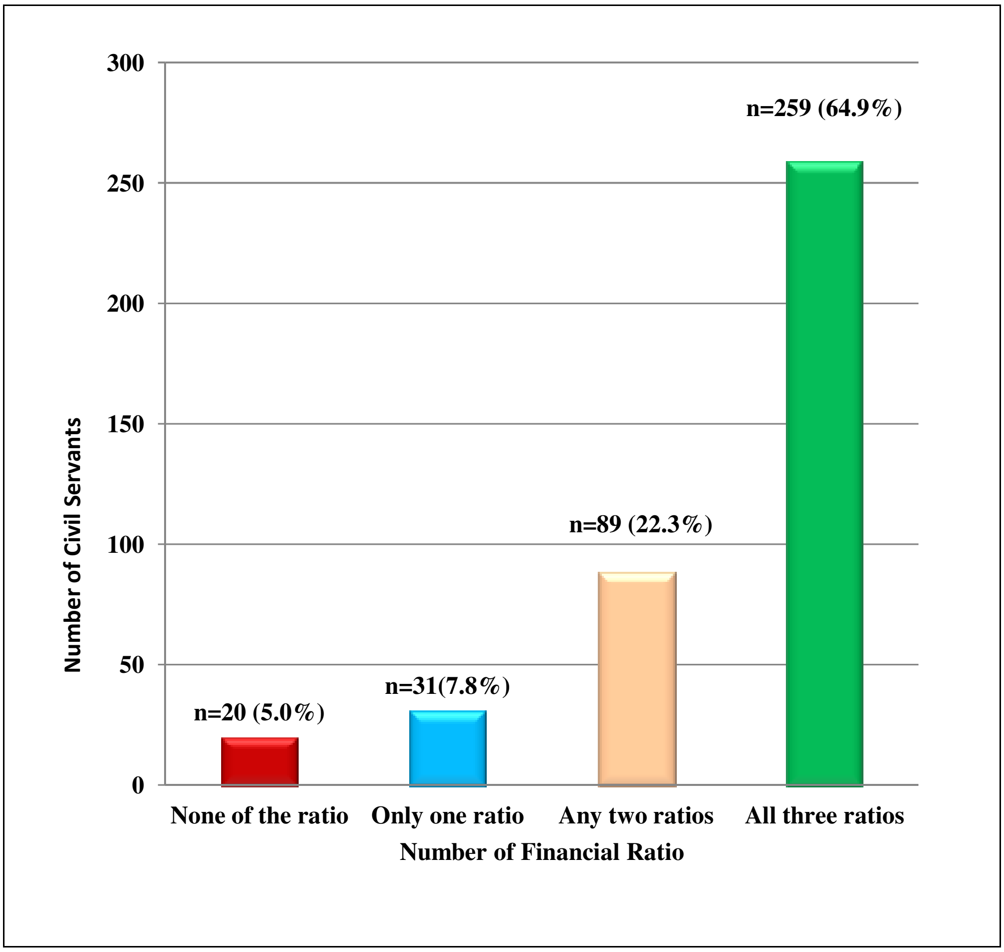

Figure 1 : Total Financial Ratio Fullfilled By The Respondent

The descriptive analysis of the total financial ratio fulfilled by civil servants in Malaysia is shown in Figure 1. Based on the result in Figure 1, almost 95 percent of the civil servants achieved the border line by fulfilling at least one out of three ratios (liquidity ratio, solvency ratio and consumer debt ratio). However, there were 20 respondents (5%) out of 399 respondents in this subject who were not living up to any of the financial ratios. This shows that those respondents who did not fulfill any of the financial ratio requirements might be prone to mismanagement of their financial resources and have high chances to fall into bankruptcy trap. To illustrate this, those civil servant who without a proper financial planning were able to provoke unexpected financial instability such as bankruptcy. Complementary to this, those who fulfilled any two ratios (22.3%) and all three ratios (64.9%) were resolved to be more financially stable and secured as compared to the ones who complete only one ratio (7.8%). Thus, it can be concluded that using this analysis can further assist in financial determination to keep off serious financial indebtedness and forbid an individual from falling into bankruptcy (Rosdi et al., 2013).

5. Conclusions and Implications

The main objective of the present study was to understand the determinants of bankruptcy probability among Malaysian civil servants. The research employed financial ratios to predict the bankruptcy probability of civil servants based on their liquidity ratio, solvency ratio and consumer debt ratio.

In some manner, it seemed that the there were 5 percent out of 399 respondents in this subject were not living up to any of the financial ratio. This showed that those respondents who did not fulfill any of the financial ratio requirements might be prone to fall into a bankruptcy trap. Furthermore, the ones who fulfilled only one ratio (7.8%), still have to be more diligent and aware in handling their financial affairs because they had only achieved the minimum requirement of financial ratio. In the long run, if their financial standing is still not improvised, they will face financial pressures and mounting debts that can often cause many misfortunes such as bankruptcy, family discord, depression and so on. The ultimate significance of the research is that when steps could be taken to enhance the financial management practices, civil servants would be able to handle their finances wisely and prevent themselves from falling into bankruptcy. Findings of the present study showed that financial ratios significantly predicts bankruptcy probability. This finding was more less similar to studies conducted by Rosdi et al., (2013), Husniyah (2009) and DeVaney (1994). Researchers have mentioned that those who have not fulfilled any of the financial ratios are prone to be bankrupt in the future.

It has been shown that, in the long run, if an individual's financial standing is still not improvised whereby, if they did not achieve the minimum requirement for the financial ratios, they might face financial pressures and mounting debts. Thus, understanding the underlying factors predicting the bankruptcy probability among civil servants can help prevent this issue before it becomes a serious issue in the future. Hence, a sound financial situation was expected from achieving a good financial ratio for both participating departments and individual level. An effective financial programme should be provided as fundamental proficiencies that can help civil servants manage their financial resources wisely. In summary, an efficient financial management and application of good practices would indirectly lead to more positive social and economic outcome not only for civil servants but also for society as a whole.

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