

# Quality Self Assessment Scheme for SMEs in Hong Kong SAR

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## **ABSTRACT**

*Small and medium-sized enterprises (SMEs) are the basic building blocks of Hong Kong's economy. Typically, a SME employs less than 100 employees in manufacturing and less than 50 employees in non-manufacturing sector. One major difficulty SMEs encounter these days is how to obtain finance from the banks. Reciprocally the banks have difficulties in assessing the SMEs more holistically. There is a distinct need for developing a Quality Excellence Assessment Scheme (QEAS), designed especially for the SMEs to assess their business performance fairly and objectively by a neutral professional assessor. Such a scheme can help alleviate the stumbling-block between the SMEs and their bankers. This paper outlines a preliminary desk research of business performance using ordinal regression. Further empirical studies on establishing the determinants for business success of SMEs will be necessary to develop a widely acceptable QEAS tailor-designed for SMEs in Hong Kong SAR.*

Keywords: Quality Assessment, SME, Ordinal Regression, Hong Kong SAR

## **1.0 Introduction**

SMEs in Hong Kong account for 98% of the business establishments and employ about two thirds of the workforce. To a large extent, Hong Kong's economic success depends heavily on the well being of the SMEs. Various schemes have been set up by the SAR government to help these SMEs which do not have the sophistication and financial strengths of the large business operators in the territory (Li, 2000). These include Resource Centres, whose websites / emails are listed here:

- Hong Kong Productivity Council SME Centre (email: [Sme@HKPC.ORG](mailto:Sme@HKPC.ORG) )
- Trade Development Council SME Centre (URL: [www.tdctrade.com/sme/](http://www.tdctrade.com/sme/) email: [sme.centre@tdc.org.hk](mailto:sme.centre@tdc.org.hk) )
- Hong Kong Association of International Co-operation of SMEs (email: [phyllis@pkykwong.com](mailto:phyllis@pkykwong.com) )
- Hong Kong Small and Medium Business Association (URL: [www.hksme.org](http://www.hksme.org) )
- SME Office, Industry Department of the Government of the Hong Kong Special Administrative Region (URL: [www.sme.gcn.gov.hk/english/dsp/dsp\\_lst.cfm](http://www.sme.gcn.gov.hk/english/dsp/dsp_lst.cfm); email: [smeeng@id.gcn.gov.hk](mailto:smeeng@id.gcn.gov.hk) )
- Hong Kong Quality Management Association (URL: [www.hkqma.org.hk](http://www.hkqma.org.hk); email: [info@hkqma.org.hk](mailto:info@hkqma.org.hk) )

### 1.1 *Difficulties facing the SMEs*

In view of the Asian financial crisis, many SMEs are facing severe problems such as adverse cash flow situation, declining sales, shrinking margins and deteriorating competitiveness. These were further compounded by the more conservative stances taken by the bankers. The financial provider began to realize that collateral security of brick and mortar had no longer been adequate and they started to look for better and safer way of lending to the SMEs. Inevitably many bankers became more cautious in lending to the SMEs particularly to the new establishments. In order to disentangle this knot, the Trade Development Council (a quasi government body established up in the sixties to help traders in Hong Kong) has prepared a reference article "*How to approach banks to obtain finance for your trading activities*" for the SMEs.

## 2.0 **Assessment for Business Excellence**

Lascelles et al. (1996) suggest that business excellence require:

- Farsighted, committed and involved leaders;
- A clear understanding of critical success factors;
- Flexible and responsive process management;
- Employees with relevant know-how and skills;
- Continuous improvement;
- Assessments of current and future performance

They need to be learning organizations with a holistic approach based on customer satisfaction and creative use of employee talents.

### 2.1 *Measurement of business performance*

Balanced Scorecard emphasizes the importance of performance measurement: "*If you can't measure it, you can't manage it*" and "*What you measure is what you get*" (Kaplan and Norton, 1996; Bogan et al. 1994; Hitt, 1995; Koo, 1998). Following these common sense philosophies, one can claim: "*If you are not measuring it, you are not managing it*". How often do managers these days conscientiously identify their key success factors and measure their achievements in these areas? The small and medium enterprises are particularly vulnerable to the adverse and rapidly changing business environment. They can survive easier and prosper better if they have an effective quality excellence assessment scheme as a guiding compass of their business venture.

### 2.2 *Potential Application of Quality Excellent Assessment Scheme*

Many renowned quality assessment schemes are in existence. Notably they include the Malcolm Baldrige National Quality Award, European Foundation for Quality Management, and the Deming Prize (Lascelles et al. 1996). Each of these schemes has its own merits. However, they may be too onerous and complicated for the SMEs who may lack the expertise and resources to adopt these international quality schemes. There is a need to develop a valid and reliable assessment tool tailor-designed to the SMEs in Hong Kong. Apart from helping the SMEs concerned to monitor and improve their business excellence, the scheme can provide the proper recognition and motivation for their achievements.

One important application of the QEAS would be to use it as an audited certification of good management competency of the SME concerned. When this scheme becomes established and widely recognized by the industry and the banking sector, it will help boost the economy in Hong Kong. The trading partners of the SMEs can more confidently rely on the well being of the QEAS assessed SMEs than otherwise. Similarly, bankers will have something useful and relevant to refer to when providing finances to the SMEs. The QEAS would bridge the gap if not a gulf that may exist between the SMEs and their bankers.

### **3.0 Application for bank finance**

It is useful for the SMEs to know the usual lending criteria adopted by their bankers. The Trade Development Council has released some useful and pragmatic guidelines ([www.tdc.org.hk/sme/bank.htm](http://www.tdc.org.hk/sme/bank.htm)) for the SMEs in Hong Kong in negotiating with their bankers for their finance requirements. The criteria are:

- Good cash flow
- Adequate shareholders' funds
- Adequate security
- Experience in trading
- Good reputation and standing
- Specific purpose of the bank finance

Different banks adopt different lending policies and practices. Apart from reviewing the financial performance, most banks would require some forms of collateral and guarantee from the applicants. However difficulty arises when the applicant is new to the bank or the cushion of the collateral is thin. Unless the banker is convinced of the business prospects of the SME credit applicant, facilities are not likely to be granted. The banks inevitably would like to have a fuller and more balanced picture of the applicant before they are prepared to relax their cautious attitude. A neutral, valid and reliable business performance assessment scheme (e.g. the QEAS) can create a win-win situation for the SMEs and their bankers and help facilitate bank finance negotiation.

### **4.0 Determinants of credit scorings**

This paper outlines a preliminary attempt to develop the Quality Excellence Assessment Scheme through determining the key determinants for credit rating. Many banks use credit scores to rank (i.e. ordinal data) the creditworthiness of their borrowing customers. These ordinal credit scores reflect the business performance of the borrowing customers in the eyes of the bankers. This is a desk research using empirical data by a relatively new statistical technique known as ordinal regression.

#### *4.1 Ordinal Regression*

This powerful statistical technique helps build models, generate predictions, and evaluate the importance of various predictor variables for the dependent variable which is ordinal in

nature. This is an improved technique over the multiple linear regression which requires the dependent variable to be interval or ratio data.

Apparent continuous variables are sometimes treated as ordinal due to presence of threshold effects. A good example is years of education. Whilst years of education are continuous data, the educational 'milestones' changes the relationship between the time and corresponding educational achievement. The achievement of a two-year master degree is obviously greater than the two-year matriculation programme.

Ordering of categories is important for ordinal variables. If two adjacent categories are merged into one larger category, models built using the old and new categorization should be very similar. This is not the case for linear regression which is sensitive to merging of categories.

In ordinal regression model, the thresholds are estimated as part of the model and need not be specified *a priori*. The model predicts a link function of the cumulative probabilities of the threshold values. Various link functions are available in SPSS 10 Advanced Statistics module (e.g. Logit; Complementary log-log; Negative log log; Probit; and Cauchit). The choice of the appropriate link function depends on the distribution pattern of the dependent variables.

#### 4.2 *Constructing an Ordinal Regression Model*

The model construction entails several decisions. First, the ordinal outcome variable has to be identified. Then the predictors for the location components of the model have to be chosen. Finally the choice of the appropriate link function needs to be made.

The selection of predictors, through theoretical and empirical considerations, for the location component of the (location-only) ordinal regression model is similar to that in a linear regression model.

SPSS produces pseudo- $R^2$  measure to assess the overall goodness of fit of the model. This measure serves similar function as the coefficient of determination in linear regression models. This goodness of fit measure summarizes the proportion of data variability of dependent variable associated with the selected predictor (independent) variables. The value of Nagelkerke Pseudo- $R^2$  (modified from the Cox and Snell's  $R^2$ ) falls in the range from full zero to one.

The model predicts cumulative probabilities rather than category membership. Two steps are needed to get predicted categories. First, for each case, the probabilities are estimated for each outcome category. Then these probabilities are used to select the most likely outcome category for each case. The probabilities for each category can be computed by subtracting the cumulative probabilities for the group in order.

#### 4.3 *Results of the Ordinal Regression Analysis.*

A total of 767 cases were used. Due to existence of missing values, only 565 valid cases were eventually used to develop the model. The dependent variable is a five point credit scoring assessed through traditional credit analytical approach. 21 independent variables

were used in building the model. They are grouped into five categories, viz. Management, Facility & Security, Banking Relationship, Account Performance, and Financial Performance. Through successive screening processes, using theoretical and empirical judgement, five independent variables remain. The five determinants for credit scorings are: reduction of credit lines; amount and duration of overdue; average utilization of credits lines; interest coverage; and retained earnings/total assets. These five aspects are related to the lending criteria 'good cash flow' and 'experience in trading' outlined in section 3.0 above.

The Nagelberke Pseudo R-Square is 0.457. Some 46% of data variability of credit scorings can be explained by five independent variables.

## **5.0 Conclusion and recommendations**

Despite the relatively satisfactory predictive power of the ordinal regression as described in the preceding section, much additional works need to be carried out to develop the Quality Excellence Assessment Scheme. The desk research at best highlights the key considerations for assessing business performance from the perspective of the bankers. The criteria used are still largely financial in nature and are not balanced or holistic enough.

Some SME support organizations and / or the Hong Kong SAR government should take the initiative to develop and maintain a Quality Excellence Assessment Scheme designed especially for the SMEs in Hong Kong. The existing criteria adopted by the leading international quality assessment schemes can be used as reference. In its strategic workshop held at the start of the Millenium New Year, the Hong Kong Quality Management Association (HKQMA) has decided to explore this QEAS concept. This paper is the first step to trigger discussion and interest how this scheme can be best proceeded. If funding is available from the Government, a large scale survey among the SMEs and the banking sectors should be conducted to identify the needs of this scheme from different perspectives.

To be successful, the QEAS has to be simple to administer, fair, balanced, valid and reliable. Due considerations have to be accorded to 'What to measure' and 'Why measure' (Crowther, 1996). It should be a process of evaluating a SME against a model for continuous improvement, to highlight what has been achieved and what needs improving (Hillman, 1994). Key success factors may vary among different industries. The SMEs may have to be segmented into different sectors to reflect the changing business environment in Hong Kong. The QEAS once developed can be used for self assessment purposes to improve the business performance of the SMEs. Alternatively, this can be used as a certification scheme, audited by a neutral body, to provide evidential support of the competency and achievement of the SMEs concerned. The later approach can be of great assistance to SMEs in negotiating bank finance requirements from their bankers.

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