Chapter 8

Financing Small and Medium Manufacturing Firms in Malaysia

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CHAPTER 8

Financing Small and Medium Manufacturing Firms in Malaysia

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Using a stratified random sample, this paper seeks to examine the ease of access to finance among small and medium firms in Malaysia. The results show that there is an obvious bias in the financial environment facing the smaller firms, which is reflected in the strong inverse relationship between access to finance and firm-size. Access to finance was inversely correlated with labor productivity, which shows that the more productive firms have less access, or simply that the cost and other terms of external capital is too high for the better performers. The relationship between firm-size and incidence of participation in R&D activities was also inverse, demonstrating that smaller firms are more dynamic than the larger firms among SMEs in Malaysia. Given that several firms reported having declined to pursue external funds on the basis of the terms and conditions attached, rather than having had difficulty of access to funds, the inverse relationship may actually show that the better performers, who have the option of preferring internal sources, show higher labor productivity than those who have received external funds.

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1. Introduction

The growth of firms depends on many factors, with the availability and cost of funding being an important one (see Storey, 1994). Funding patterns of small and medium firms are considered to vary, *inter alia*, with collateral and credit worthiness, industry affiliation (Galbraith, 1982), reputation and also family background (see Gregory *et al*, 2005). The micro, as well as new firms face, the biggest difficulty obtaining funds from external sources, because of their lack of reputation and the shortage of information about them (see Berger and Udell, 1998). The qualifications and experience of the owner or management are sometimes viewed as important criteria that can help small firms access funds (Diamond, 1989; Fluck, Holtz-Eakin and Rosen, 1997). In the absence of a pronounced record of capabilities, small firms rely considerably on families, relatives and friends for scarce funds (Petersen and Rajan, 1994; Hamilton and Fox, 1998).

On the supply side, the availability of funds for small and medium firms also depends on the environment facing the firms. Strong central bank coordination, financial regulations and supply of liquidity can also ensure that funds are spread to a wider range of small and medium firms. Indeed, Beck, Demirguc and Maksimovic (2005) provided evidence indicating that small firms face the biggest problems accessing funds where the institutions governing them are poorly developed. Micro-finance has evolved successfully in the least developed country – Bangladesh – where small firms lacking collateral face severe disadvantages in access to credit. However, where there is a considerable supply of capital, and market clearing interest rates are low, micro finance may not be the solution for small firms. Information imperfections and the lack of collateral may instead be bigger problems in such locations. It is for these reasons that governments in some middle income countries have launched banks specifically to support the operations of small and medium firms. Where venture capital is dominant, new start ups from reputable labs and universities can often finance higher risk-taking in return for higher returns. Where investment funding for small firms is underdeveloped, new firms tend to rely considerably on the funds of the owners and business 'angels' (Carey *et al.,* 1993). Venture capital

normally accepts intangible assets for funding, as long as the reputation of the "technopreneur" or the organization he or she comes from is known.

Using evolutionary economic theory, this paper seeks to examine the nature, problems and use of funds accessed, and the performance of small and medium manufacturing firms in Malaysia. Existing works on funding SMEs have identified diverse funding structures and contrasting performances. Given the diversity of small and medium firms, and the relationship between productivity and funding structures, a number of variables are examined controlling for industry, employment and ownership. The rest of the paper is organized as follows. Section 2 discusses government policy targeted at supporting the development of SMEs. Section three discusses the methodology and data used in the paper. Section four examines firm's perception of the role of *meso* organizations in their operations. Section five assesses the financial environment facing the sampled SMEs. Section six analyzes the impact of funding structure on firm performance and technological capabilities. Section seven presents the conclusions.

2. Government Policy

SMEs have figured significantly in industrialization initiatives in Malaysia. The earliest can be traced to colonial Malaya when, since the 1950s, the British through the Rural Industrial Development Authority (RIDA) provided small loans to stimulate petty handicraft manufacturing (Jomo, 1986; Rasiah, 1995). The purpose of this initiative was to arrest support for the communist insurgency and hence the program did not achieve much success. The Malaysian government opened the Majlis Amanah Rakyat (MARA) as one of the strategies in the late 1960s to uplift the standard of living of *Bumiputeras*,[2] which *inter alia*, supported the development of Malay entrepreneurship. Such forays by the government were carried out through privately incorporated channels. It was only after

[2] *Bumiputera* literally translated means son or prince of the soil. The term was originally used to refer to Malays, but it has subsequently been extended to include the indigenous peoples of Malaysia, Malaysian Thais and the Eurasians and straits Chinese (Baba Chinese) with lineage to pre-colonial Malaya.

1975, through the Industrial Coordination Act (ICA), and the initiatives of the Malaysian government to implement the New Economic Policy (NEP) of 197 that formal efforts to restructure the economy ethnically using regulatory measures were implemented. Formal SME programs then mushroomed in several ministries before efforts were taken to integrate them under one body in 1996. These programs have had a bearing on the growth and performance of SMEs in Malaysian industrialization.

The ICA of 1975, inter alia, regulated ownership of industrial firms with paid up capital exceeding MYR250,000, and employment size exceeding 50 employees, so that at least 30 percent Bumiputera equity was met. These floor stipulations were raised to MYR500,000 and 75 employees by 1980, and subsequently to MYR1 million and 100 employees before it was raised again to MYR2.5 million by the end of the 1980s (Chee, 1986). The MYR2.5 million has remained unchanged since that time. Foreign firms exporting over 80% of output were, however, to keep 100 percent of foreign ownership. Because of Malaysia's small domestic market foreign firms in manufacturing largely exported and hence did not find the ICA regulations stifling (see Rasiah, 1995). However, the expansion of non-*Bumiputera* local firms was considered to have been hampered by such regulations (see Jesudasan, 1989) many of whom apparently had to provide incentive gifts to attract *Bumiputera* partners (see Yoshihara, 1988).

Government took direct initiatives during the Dr. Mahathir premiership over the period 1981-2003, when government funds and strategies targeted the growth of industrial SMEs. The "umbrella" concept was introduced to nurture particular *Bumiputera* SMEs with Proton (backward linkages) and Perwaja Steel (forward linkages) becoming key targets. Firms offering tenders to supply components and parts to Proton and to use wire rods from Perwaja Steel were required to show at least 51 percent *Bumiptera* ownership. Given that these firms supplied largely the domestic market it came under the regulations of the principal customs area and hence the scrutiny of ICA regulations involving industrial firms selling less than 80 percent of output in Malaysia. The ICA required that industrial firms selling less than 80 percent in the domestic market met the New Economic Policy target of offering 30% equity to *Bumiputeras*.

The role of the Small and Medium Industry Development Corporation (SMIDEC) has been boosted with its the renaming as "SME Corp" and the subsequent opening of the SME Bank after the turn of the millennium. The National SME Development Council was launched in 2004 to strengthen further the government's support in the development of SMEs in Malaysia (Malaysia, 2010: 42). It has introduced a number of initiatives to coordinate the policies and programmes of 15 Ministries and 60 Agencies in the country. The establishment of the SME Bank was one of the highlights of this development program. A total of 162 key programmes, were implemented, with a financial commitment of RM3.05 billion which benefited 603,173 SMEs across all sectors by 2009. In 2009 alone the SME capacity development thrust of government saw the implementation of 119 programmes with a financial expenditure of RM804 million benefiting 289,200 SMEs. The breakdown by focus areas included 38 per cent for entrepreneurial development, 27 per cent for human capital development and 15 percent for marketing and promotions. The largest share of the allocation, amounting to RM2.2 billion, was targeted at enhancing access to financing for SMEs, channeled through 21 programs, benefiting 35,700 SMEs. Interestingly, around 81 percent (17 programs) were for working capital facilities with total expenditure of RM1.6 billion that benefited 8,800 SMEs.

The programmes include:

The special funds that were introduced to finance SMEs and coordinated through Bank Negara Malaysia in 2009 included:

(1) Microfinance schemes such as Micro Enterprise Fund (MEF) by BNM, AgroBank (*Pinjaman Mikro ESP-i*), *Tabung Ekonomi Kumpulan Usaha Niaga* (TEKUN) and *Amanah Ikhtiar Malaysia* (AIM);

(2) Soft Loans for SMEs by the Ministry of International Trade and Industry (MITI) through SME Corp. Malaysia; and

(3) SME Scheme and *PROSPER* Schemes by Perbadanan Usahawan Nasional Berhad (PUNB).

Following criticism raised in the first Industrial Master Plan (IMP) of 1986 and the Second Industrial Master Plan (IMP2) of 1996 over the growth of multinationals in key export-oriented industries, such as electrical-electronics and textiles and garments, as being isolated, with few linkages into the domestic economy, the government introduced the subcontract exchange programme to stimulate linkages. Electronics multinationals in particular took on the project seriously not only to access incentives but also, as an integral part of their policy to cheapen costs and make manufacturing flexible. Using detailed studies of production transitions and the evolution of regional and proximate production networks Rasiah (1988a, 1988b) had argued that the time then was ripe for host-governments to take advantage of these developments to promote the growth of local supplier firms. The key argument is that the multinationals were then seeking to develop suppliers as part of their own self expansion plans. In Penang in particular suppliers to electronics multinationals expanded several folds between 1980 until 1993 (see Rasiah, 1994, 1996). However, only Penang demonstrated a successful expansion of suppliers in the industries of machine tools, plastic molding, and packaging, largely benefiting from a surge in proximate demand from electronics multinationals implementing flexible production techniques.

Government promotion of SMEs expanded in the meantime into other manufacturing industries, including food processing and wood products (Malaysia, 1996). SME products were included in Malaysia's exhibitions and promotions abroad through the activities of Malaysia External Trade Development Corporation (MATRADE). Whereas the depletion of timber, cane and bamboo has led to a relative contraction of the latter, the promotion of food processing has expanded considerably with palm oil and oleo-chemical products becoming important (Gopal, 1999; Rasiah, 2006).

The uneven growth of suppliers with only industries complementary to electronics and only in Penang led the government to review its SME policies. After much deliberation of the IMP2 the government introduced the Small and Medium Industries Development Corporation (SMIDEC) in 1996. It was felt that a corporatist outlook as well as the integration of all SME activities under one body within the Ministry of International Trade

and Industry (MITI) would help rationalize and synergize SME promotion. Because of the problems of funding faced by new start ups and small SMEs, the SME Bank was introduced in 2006 to provide special interest based loans to qualifying SMEs. SMIDEC was subsequently renamed "SME Corporation".

The new initiatives were helpful in that they helped provide both advisory as well as more effective support for SMEs, as connections and coordination between entrepreneurs were linked much better with the *meso* organizations[3] the government launched to stimulate the growth of SMEs. However, the mid-1990s proved a turning point, as the growth of suppliers in Penang plateaued and subsequently began to contract. The lack of human capital, and government indecision over leveraging strategies recommended by the IMP2, caused an hollowing out effect in the electronics industry in Malaysia. Denied the capacity to upgrade into higher value added activities, several foreign firms either relocated operations to lower-cost sites endowed with larger labor reserves such as China and Vietnam, or scaled down their operations in Malaysia. The remaining flagship multinationals began, either to use largely foreign labor in low end assembly activities (e.g. Flextronics and Western Digital) or upgraded into designing activities (e.g. Intel and Motorola) or fabrication activities (e.g. OSRAM). Unfortunately the lack of human capital has restricted the latter to a handful of firms (see Rasiah, 2010).

Nevertheless, proactive support from the government has helped underpin the growth of SMEs in Malaysia. The share of SMEs rose considerably over the period 1996-2008. Both government policies to promote SMEs as well as the slowdown in the foreign MNC-led sector were instrumental in the relative expansion of the SME share in overall manufacturing output, value added and employment (see Table 1). The contribution of SMEs in manufacturing output, value added and employment in Malaysia rose from 22.1, 19.5 and 29.6 percent respectively in 1996 to 29.6, 25.9 and 31.1 percent respectively in 2005 and 30.9, 26.5 and 31.8 percent respectively in 2008. Both the output and value

[3] *Meso* organizations refer to intermediary organizations that deal with collective action problems involving firms.

added of manufacturing SMEs grew faster on average in 2005-2008 than over the period 1996-2005. Only the number of establishments grew more slowly in the latter period.

Table 1. Contribution of SMEs in Manufacturing, Malaysia, 1996-2008

Indicators	1996	2005	2008
Total Output			
Value (RM billion)	51.5	81.9	100.3
% Share of the manufacturing sector	22.1	29.6	30.9
Average Annual Growth		5.3*	6.3#
Added Value			
Value (RM billion)	10.1	16.6	20.5
% Share of the manufacturing sector	19.5	25.9	26.5
Average Annual Growth		5.7*	6.5#
Number	329,848	394,670	420,917
% Share of the manufacturing sector	29.6	31.1	31.8
Average Annual growth		2.0*	1.8#

Note: * Average annual growth rate for 1996-2005;
Average annual growth rate over 2005-2008;
Growth rates computed using 2000 prices.
Source: http://www.smidec.gov.my/pdf/SME_Performance_Report_2005.pdf;
http://www.smecorp.gov.my/sites/default/files/SME%20AR08%20Eng%20Text.pdf.

It can be seen that SMEs have enjoyed considerable support from the Malaysian government with new meso-organizations created to refine the role of government in their development. Increased funds and initiatives to support entrepreneurial development, human capital development and marketing and promotions have also received strong financial support. The next section will examine the ground-level realities of these initiatives against the theory on the funding of SMEs in developing countries.

3. Methodology

This section introduces the methodology and data used for examining the sources, types and structure of funding faced by, and technological capabilities and economic performance of SMEs and in Malaysia generally. Given the usual sequence of examining

differences and relationships statistically, the paper will first examine descriptive statistics followed by two tail tests comparing the means of critical technology and economic performance variables differentiated by the degree of integration in production networks. The subsequent analysis will focus on the influence of size on the key technology and performance variables.

The first exercise uses cross tabulated data to examine the relationship between size, industry, ease of access and sources of finance enjoyed by SMEs in Malaysia. The second exercise examines the influence of firm-size on access to finance. The third exercise examines the impact of access to finance on labor productivity.

3.1. Specification of Variables

The prime focus of the paper is on the ease of access to, and sources and cost of, finance faced by SMEs in the sampled firms, taking account of the business phase of the firms concerned. Data on the following questions and variables and variables were collected and used for analysis.

3.1.1. Firm-level Variables

The variables used in the paper are specified in this sub-section. The firm-level variables defined refer to labor productivity, export intensity and technological intensity. Size is also an important explanatory variable. We began analyzing the data against size, ownership and gender but dropped ownership and gender from the analysis because of the low incidence of foreign ownership and female control of the firms in the sample. Nevertheless, these variables along with age were included in the Probit regressions.

3.1.1.a. Access to Finance

The key differentiating question used in order to analyze ease of access to external financing is whether a request was made to access external finance. Over the long term all firms reported having sought external financing. Of the firms that did not receive external financing, a number reported having discontinued their pursuit owing to disagreements over

the interest rates and other terms and conditions. An attempt to decompose the period did not produce a reasonable mass of responses for analysis. The request for finance was then examined against the requests that were approved in full, and the ones approved partially.

Then, Access to Finance (FA) was estimated as:

Requested and Approved=1;

Requested but not approved=0

3.1.1.b. Sources of Finance

A wide range of source are identified for the assessment of sources of finance, *viz*, banks, trade supplier credit, government loan or grant, retained earnings, personal savings of the owner, leasing firms, loan from employees, support from relatives and friends. Two sets of questions were asked, one, at the start of the enterprise, and two, to sustain operations.

3.1.1.c. Phase in the Business Cycle

Financial needs and performance vary with the point in the cycle in which the firm is. Hence, the results are controlled for the stage of the business, i.e. start, fast growth, slow growth, maturity and decline.

3.1.1.d. Conditions of Approval

The conditions of approval play an important role when firms apply for external sources of finance. The critical conditions are typically the submission of a formal application form, business financial statement, personal financial statement, details of cash flow if the firm is already in business, collateral and guarantors. The chances of approval often rise if the applicant can provide a government guarantee.

3.1.1.e. Cost of Capital

The cost of capital is typically denoted by the interest rate, and is an important determinant of a firms' capacity to compete.

3.1.1.f. Labour Productivity

Labor productivity is used as one of the key economic performance variables. Because the questionnaire used in the survey did not draw upon investment or capital data, no attempt is made to estimate total factor productivity. We believe in any case that the controversy over the efficacy of TFP as a technology variable is real, and therefore do not believe that its avoidance should raise questions on the strength of the arguments.

Labor productivity was measured as:

Labor Productivity = VA/L

Where VA and L refer to value added and workforce respectively.

VA is estimated in US Dollars.

3.1.2. Technological Capabilities

The variable R&D expenditure in investment is the main variable used to proxy Technology. Other technology variables used are best practices such as utilization of International Standards Organization (ISO) standard, age of machinery and equipment, absorption of information communication technology.

New technology (NT) intensity refers to the introduction of new processes, standards, machinery and equipment or organization of production.

NT is measured as follows:

NT= sum[ISO, NME, NICT, NPM, NP, NPR]

Where NT, ISO, ME, ICT, NPM, NP and NPR refer to incidence of new technology, international standards, new machinery and equipment, new information communication technology, new production method, new process and new product introduced by firm i.

RDI is defined as a dummy and is measured as:

RDI = If firm reported yes;

RDI=0 otherwise.

Higher levels of NT and RDI are expected to show stronger technological capabilities.

3.1.3. Size

Size is the key differentiating variable in the paper and is represented by the fulltime workforce number of the firm. Because the simple use of actual employee numbers did not produce a significant result, a dummy variable was used to classify size into four categories, as below.

Size was measured as follows:

S1 = 1-5 employees;

S2 = 6-49 employees;

S3 = 50-99 employees;

S4 = 100 and more employees.

3.2. Other Variables

Three other variables were tested, *viz*., ownership, gender and age. Ownership and gender were dropped because of the low incidence of foreign (8.6%) and female owners (16.6%).

3.2.1. Age

Age is simply measured here as follows:

A_i = Number of years since establishment

Age is expected to be positively related to export performance and technological capabilities as it is believed that firms over time gather the required knowledge and technological know-how to perform better than the new start ups.

However, there are also arguments that new firms will find it more convenient to begin their production with the already existing superior technology or that foreign firms which located recently will bring superior technology with them and will have better access to foreign markets (Rasiah, 2004). In view of conflicting findings in the past, a neutral hypothesis is assumed at this stage.

3.2.2. Data

Two sets of data were collected for analysis. In the first, 12 *meso* organizations with direct interest in implementing and monitoring government policies (e.g. Central Bank, SME Corp and Ministry of International Trade and Industry) in support of SMEs or engaged actively in supporting their activities (e.g. banks and training institutes) were asked to rate, using Likert scale scores, the existence, incidence and effectiveness of SME support programs using the criteria used by the European Union (see Table 2). The second, set of data drew on SMEs' responses. Using the definition of SMEs in Malaysia, only firms with employment size of less than 250 were picked up in the sample. The selection procedure relied on an official list of firms, which typically would not have an exhaustive record of micro firms. The selection of firms from the industries of electrical-electronics, textiles-garment, automotive parts and others was based on the share of the industry's value added in the manufacturing sector. Because the internal details of firms were not obvious we relied only on geographical location to stratify the sample. Whereas a total of 200 firms were sent questionnaires, we managed to collect responses only from 151 firms.

Data were collected over the period September 2010 to December 2011. Using a sampling frame drawn from the Department of Statistics (DOS) the number of firms drawn from each industry was based on the share of value added of the four categories in manufacturing value added. Of the 151 SMEs' data collected, two were dropped because of the lack of sufficient information for analysis. The breakdown is shown in Table 3.

Table 2. Breakdown of Meso Organizations, 2009

Type of Organization	Number
Central Bank	1
Government Bodies	2
Training Institutes	3
Commercial Banks	6
Total	12

Source: ERIA-Malaysia Survey (2010).

Table 3. Breakdown of Firms by Industry, Sample, Malaysia, 2009

Industry	Firms
Automotives	24
Textile and Garments	17
Electric-Electronics	54
Other Products	56
Total	151

Source: ERIA-Malaysia Survey (2010).

Specification of Equations:

$$\textit{Probit}: FA = c + \beta_1 LNEM \quad (1)$$

$$\textit{OLS}: LNVAL = c + \beta_1 FA + \beta_2 A \quad (2)$$

$$\textit{OLS}: LNVAL = c + \beta_1 LNEM + \beta_2 RDI + \beta_3 A \quad (3)$$

$$\textit{Probit}: RDI = c + \beta_1 LNEM \quad (4)$$

The above equations were run with industry dummies. The variables of Gender and export-intensity were dropped because of very low incidence, while problems of colinearity led to the dropping of LNEM from model (2) (see Appendix 1). The model fit was best for equation (4) when industry dummies and age were dropped.

4. Meso Organizations Supporting SMEs

Given the significance of *meso* organizations in supporting SMEs through connectivity and coordination, a separate exercise was conducted with them to assess, from their standpoint the existence and strength of government driven instruments. The *meso* organizations with relationship with SMEs who participated in the survey were Bank Negara Malaysia, three training institutes, three commercial banks, two finance companies, two consultancy firms with wide consultancy experience on SMEs, and one rating firm. Efforts to get the SME Bank and SME Corp to take part did not generate any response. The assessment using Likert scale scores offers their rating of the different instruments targeted at supporting SMEs in Malaysia.

Three *meso* organizations only responded to the section they felt they covered, while the remaining nine answered all questions. The results are shown in Table 4. The response rate was total only for the questions on entrepreneurship education and training, and support mechanisms for SMEs. The least responded questions concerned entrepreneurship education and training, and on the need to have a legislation on electronic signatures (1) and fostering technical and research support for commercial applications (2).

Interestingly the *meso* organizations gave strong ratings for support enjoyed by SMEs in Malaysia with a mean of 4.33 with all 12 of them responding. Information on SMEs is also considered to be published and disseminated well, with a rating of 4.5. The critical question of access to finance received an average rating of 3.25. The lowest ratings were registered for one-line access, craft registration, legislation of regulations and SME-friendly taxation.

Table 4. Rating of SME-related Instruments by Meso Organizations, Malaysia, 2010

	N	Min	Max	Mean	SD
Entrepreneurship education and training	12	1	4	2.08	0.90
Increase firm registration	10	1	4	2.40	1.27
Increase online registration	10	3	3	3.00	0.00
Craft Registration	6	1	1	0.00	0.00
Legislation of regulations	5	1	2	1.80	0.45
Simplify rules	5	2	2	2.00	0.00
Institutional framework	4	2	5	4.00	1.41
Expand skills	5	2	4	3.00	0.71
Improve Online Access to government services	4	1	4	2.25	1.50
Improve online access to information	12	1	4	2.08	0.90
Regional Integration	4	3	4	3.50	0.58
Adapt Taxation favorable to SMEs	8	1	3	2.13	0.64
Access to Finance	8	3	4	3.25	0.46
Promote technology dissemination	10	1	3	2.00	1.30
Foster Technical and Research Support for commercial application	2	2	4	3.00	1.41
Develop Cluster Networks	6	4	4	4.00	0.00
SME support facilities and services	12	3	5	4.33	1.16
Publish Information for SMEs	10	4	5	4.50	0.71
Need for a Law on Electronic Signature	1	1	1	1.00	0.00
SME Networks	9	3	4	3.50	0.71
Public-Private Consultation	12	1	3	2.00	1.16

Source: Compiled from ERIA Survey (2010).

Overall, the responses received average ratings from the *meso* organizations suggesting that SME support organizations in Malaysia have much to catch up with international best practices. Given the importance of *meso* organizations in solving collective action problems it is important for the government to establish strong connectivity between the programmes it launches and the target firms.

5. Financial Environment

This section examines the ease of access, sources and cost of finance facing the SMEs in the sample. In light of the lack of statistically meaningful relationships between the financial variables and the performance variables, the analysis in this section is interpretative. The assessment on the financial variables is then assessed against the performance and capability variables in the next section.

5.1. Ease of Access

In this section we examine the ease of access and sources of finance faced by SMEs in Malaysia by specific size categories. We deploy simple cross-tabulation of statistics to undertake this exercise.

Of the firms responding to the survey, 55.6, 73.9, 73.9 and 83.3% of firms in the size categories of 1-5, 6-49, 50-99, 100-199, and 100 persons and above reported having requested funds from an external organization over the period 2006-09 (see Table 5). Except for the categories 6-49 and 50-99, the requested share of the total increased with employment size.

Firms from the employment group 50-99 enjoyed the highest incidence of full approval in 2009 at 58.8%. Firms with employment of 1-5 persons (58.8%) enjoyed the least incidence of full approval followed by the size category of 6-49 (45.6%). A smaller percentage reported enjoying partial approval, with those of 100 persons and above

enjoying the highest percentage of 26.7%. The overall percentage share shows a structure similar to that of full approvals.

Table 5. Ease of Access of Finance over last Three Years, Malaysian SMEs, 2009

Employment Size	Requested	Full Amount Approved	Partial Amount Approved	Approved	Satisfied*	N1	N2
1-5	55.6	30.0	10.0	40.0	3.6	18	10
6-49	73.9	45.6	11.8	57.4	3.5	92	68
50-99	73.9	58.8	11.8	70.6	3.3	23	17
100 and above	83.3	33.3	26.7	60.0	3.1	18	15

Note: *) Mean of Likert scale scores of 1-5;
N1- total firms in sample;
N2 – total firms responding to the related question.
Source: Calculated from ERIA Survey (2010).

5.1.1. Criteria for Finance Approval

The incidence of firms reporting receiving government guarantees in the approval of loans was 14.3%, 14.7% and 18.2% among firms with employment size 1-5, 6-49 and 50-99 respectively in 2009 (see Table 6). SMEs with employment size of 100 and above did not report receiving government guarantees for the approval of loans. The highest government support for firms with employment size less than 100 may be consistent with government policy for the support of SMEs.

SMEs applying to access loans have to meet a number of criteria before their application is favorably evaluated. The common ones picked up by the survey are shown in Table 6. All firms with employment size of 50 and above reported a formal application with business financial statements as a requirement when applying for credit. The incidence was still high at 85.7% and 94.1% respectively for firms in the 1-5 and 6-49 employment size category. Asset appraisal for collateral was reported as the next most important criterion with the incidence being highest with firms in the employment category of 100 and above (92.3%) followed by firms in the employment size categories of 50-99 (90.9%), 6-49 (88.2%) and 1-5 (85.7%) respectively.

The incidence of firms reporting cash flow as an important requirement when applying for loans fell below 50% in all size categories (see Table 5). The highest incidence was in the employment size category of 6-49 (47.1%) followed by 50-99 (27.3%) and 1-5 (14.3%). The incidence of firms reporting cash flow as a requirement among firms with employment size of 100 and more was a low 7.7%.

Table 6. Conditions for Credit Approval and Application, Malaysia SMEs, 2009

	Government Guarantee	Formal Application	Business Financial Statement	Business Plan	Asset appraisal for collateral	Cash flow
1-5	14.3	85.7	85.7	100.0	85.7	14.3
6-49	14.7	94.1	94.1	91.2	88.2	47.1
50-99	18.2	100.0	100.0	72.7	90.9	27.3
100 and above	0.0	100.0	100.0	46.2	92.3	7.7

Source: Calculated from ERIA Survey (2010).

5.1.2. Phase in the Cycle

The sample breakdown of incidence by phases in the life cycle of firms, showed that none were in the starting stage,[4] while only in the size categories of 6-49 (1.1%) and 50-99 (4.3%) were there firms reporting being in the declining phase (see Table 7). No firms in the employment categories of 1-5 and 100 and more reported being in the declining phase. Most SMEs were in the slow growth and maturity phases. Firms in the employment size category of 50-99 showed the highest incidence of fast growth at 17.4% followed by the employment categories of 6-49 (9.9%) and 1-5 (5.6%). Interestingly the smallest firms were not facing decline. There were no firms reporting fast growth in the employment category of 100 and above. That all of them were in slow growth or maturity phases shows that they have stabilized without major business leaps or crashes.

[4] The sampling procedure may have biased the responses to starting as the statistics department list is for 2008, the data collected are for 2009 and the collection took place in 2010.

Table 7. Business Phase, Malaysian SMEs, 2009

Employment size	Starting	Fast Growth	Slow Growth	Maturity	Decline
1-5	0.0	5.6	50.0	44.4	0.0
6-49	0.0	9.9	47.3	41.8	1.1
50-99	0.0	17.4	47.8	30.4	4.3
100 and more	0.0	0.0	41.2	58.8	0.0

Source: Calculated from ERIA Survey (2010).

5.2. Cost of Finance

Table 8 shows interest rates that the SMEs must pay in order to access funds from external organizations. We included those that requested finance and those that did not as it can be a good proxy of the opportunity cost of capital.[5] Firms with employment size of 100 and more enjoyed the lowest minimum, maximum and mean interest rates in the sample. However, the minimum and maximum involving other size categories varied with the highest maximum faced by a firm in the employment size category of 50-99. The mean interest rate of all sizes was over 5% but the small firms faced the highest rate of 5.4%.

Overall, the interest rates are not high by most developing country standards, and this is a reflection of government policy coordinated by the Central Bank of Malaysia.

Table 8. Interest Rates by Size, Malaysian SMEs, 2009

	N	Min	Max	Mean	SD
1-5	18	4	8	5.44	1.08
6-49	92	3	9	5.36	1.17
50-99	23	4	10	5.36	1.26
100 and more	18	3	6	5.08	1.19

Source: Calculated from ERIA Survey (2010).

5.3. Sources of Finance

The sources of finance are analyzed at the time the business was started and at the time of the study as the conditions and structures can be very different.

[5] Even non-borrowing firms appear to know the kind of interest rates they would have to pay for if they took out a loan.

5.3.1. Start Ups

Trade credit from suppliers enjoyed the highest incidence of access among SMEs who have recently sought to start their ventures (see Table 9). The breakdown by employment size categories of 1-5, 6-49, 50-99, and 100 persons and above was 94.1%, 93.4%, 91.3% and 94.4% respectively in 2009 (see Table 9). Retained earnings followed second with commensurate percentages of 94.1%, 91.3%, 87.0% and 88.9%. The incidence of personal savings of the owner was next highest with the percentages of 83.3.0%, 82.6%, 69.6% and 83.3% respectively. Commercial and personal loans recorded percentages of 56.3%, 40.0%, 34.8% and 44.4%.

Loans from non-related individuals accounted for 6.3%, 35.6%, 39.1% and 44.4% incidence in the employment size categories of 1-5, 6-49, 50-99 and 100 and above (see Table 9). Leasing firms were the next most important source of finance at start up followed by commercial and personal loans. Government funds recorded an incidence of 16.7% and 3.6% in the employment size categories of 100 and more and 6-49, while this was not at all reported by SMEs in the other size categories. Interestingly, at the time of start-up, 6.3%, 7.8% and 4.3% of firms of size of 1-5, 6-49 and 50.99 in 2009 enjoyed micro credit finance.

Table 9. Sources of Finance at Start Up, SMEs, Malaysia, 2009

Size	Commercial & personal loan	Govern ment	Retained earnings	Supplier trade credit	Leasing	Loans from employees	Owner Personal Saving	Loans from non-relative individuals	Micro credit
1-5	56.3	0.0	94.1	94.1	43.8	16.7	83.3	6.3	6.3
6-49	40.0	3.3	91.3	93.4	60.0	4.4	82.6	35.6	7.8
50-99	34.8	0.0	87.0	91.3	47.8	8.7	69.6	39.1	4.3
>99	44.4	16.7	88.9	94.4	66.7	0.0	83.3	44.4	0.0

Source: Calculated from ERIA Survey (2010).

Table 10. Initiation of Start Up, Malaysian SMEs, 2009

	From Family Member	From Non-family Member	Scratch
1-5	20.0	21.4	68.8
6-49	25.3	20.9	53.8
50-99	21.7	21.7	56.5
100 and more	16.7	16.7	72.2

Source: Calculated from ERIA Survey (2010).

5.3.2. Operative Support

Trade credit from suppliers enjoyed the highest incidence of access among SMEs who have recently sought to start their ventures. The breakdown by employment size categories of 1-5, 6-49, 50-99, and 100 persons and above was 83.3%, 87.3%, 92.3% and 78.6% respectively in 2009 (see Table 11). The incidence of personal savings of the owner was next highest with the commensurate percentages of 75.0%, 73.2%, 69.2% and 78.6% respectively. Retained earnings enjoyed the same incidence as trade credit suppliers and personal savings of the owner in the 100 persons and above size category. Government funds recorded an incidence of 16.7% and 3.6% incidence among the 1-5 and 6-49 employment size categories.

Interestingly, loans from non-related individuals accounted for 41.7%, 66.7%, 76.9% and 71.4% in the employment size categories of 1-5, 6-49, 50-99 and 100 persons and above. Leasing firms were the next most important source of finance at start up, followed by commercial and personal loans. Government funds recorded an incidence of 16.7% and 3.6% in the employment size categories of 1-5 and 6-49, while they were not at all reported by SMEs in the other size categories. Apart from a 7.4% incidence in the employment size category of 6-49, micro credit was not reported by any other firm in the sample.

Table 11. Sources of Finance at Maturity State, SMEs, Malaysia, 2009

Size	Commercial and personal loan	Govern ment	Retained Earnings	Supplier trade credit	Leasing	Loans from employees	Owner personal saving	Loans from non-relative individuals	Micro credit
1-5	37.5	16.7	66.7	83.3	41.7	75.0	41.7	8.3	0.0
6-49	34.5	3.6	46.4	87.3	47.3	73.2	66.7	16.4	7.4
50-99	38.5	0.0	38.5	92.3	46.2	69.2	76.9	15.4	0.0
>99	21.4	0.0	78.6	78.6	57.1	78.6	71.4	28.6	0.0

Source: Calculated from ERIA Survey (2010).

Overall, it can be seen that the financial environment in Malaysia is not stifling to the smaller firms. Not only is the incidence of those enjoying approval for loan applications high, but the conditions do not appear to be skewed significantly towards the larger firms. However, despite the presence of major SME support instruments provided by the government, the incidence of firms in the sample accessing government guarantees to qualify for their loans in the sample was low.

6. Statistical Relationships

This section seeks to establish analytically the relationship between firm-size and access to finance, access to finance and labor productivity, and technological capabilities and labor productivity.

6.1. Firm Size and Financial Access

We used the longer term to examine the relationship between firm-size and financial access. Not only were the results for the shorter periods not significant, but the longer period is likely to be more accurate for examining the relationship as a number of firms enjoyed long-term loans. The model fit for the Probit estimation controlling for foreign ownership and industry was significant (LR-stat). Age was dropped because of colinearity problems (see Appendix 1).

The relationship between firm size and access to finance was positive and strong (significant at the 1% level) demonstrating that size has a biasing effect in the approval of external funds. The results show that the larger the firm the higher the probability of its enjoying external finance. Despite government policy to offer special support for SMEs the size bias seems to remain with respect to access to finance.

Table 12. Relationship between Access to Finance and Firm-Size, Malaysia, 2009

Probit: $FA = c + \beta_1 LNEM + \mu$

	Coefficient	Std Error	z-statistic	Probability
C	-0.479	0.514	-0.932	0.351
LNEM	0.363***	0.128	2.829	0.005
LR(stat)	10.525***	FA=0	40	
N	151	FA=1	111	

Note: *** refers to statistical significance at 1%; industry dummies are not reported.
Source: Computed from ERIA Survey (2010).

6.2. Productivity and Access to Finance

We examine economic performance in this section, using the variables of labor productivity, value added growth and export intensity, and technological capabilities using the variables of incidence of new technology introduced and R&D expenditure in total investment in 2009.

We examine the relationship between firms that requested finance (FR) and successfully accessed it (FA=1) and firm-level labor productivity. The model fit of the OLS estimations was statistically significant at the 1% level (F-stats) (see Table 13).

Interestingly the relationship between firms that requested finance and received it and log labor productivity is negative, suggesting that firms that failed to obtain finance enjoy higher labor productivity than otherwise. R&D expenditure as a % of sales was negatively correlated with log labor productivity, showing that firms that accessed finance externally invested less in R&D activities than otherwise.

The results show that, among SMEs in Malaysia, equity-financed and personally funded firms enjoy higher productivity than firms externally funded. The results tend to support Jesudasan's (1989) argument that the entrepreneurial community in Malaysia has

largely been bypassed by government instruments. Some firms reported that they have faced a negative bias in accessing preferential loans because of their ethnic background. Although government policy favors the provision of subsidized loans to the Bumiputeras export-oriented and R&D-based firms can actually seek grants and preferential loans irrespective of their ethnic background. However, according to the owners of the 11 firms we interviewed in 2010, this is often not done.

Table 13. Relationship between Financial Access and Labour Productivity, Malaysia, 2009

OLS: LNVAL= c + β_1FA + β_2RD + β_2A + μ

	Coefficient	Std Error	t-statistic	Probability
C	2.894***	0.439	6.599	0.000
FA	-0.518**	0.262	-1.977	0.050
RD	-0.082***	0.032	-2.559	0.012
A	-0.008	0.011	-0.765	0.445
R^2	0.088			
F-stat	3.910***			
N	151			

Note: *** and ** refer to statistical significance at 1% and 5% respectively; industry dummies are not reported.
Source: Computed from ERIA Survey (2010)

6.3. Productivity and Technological Capabilities

The model fit of OLS regression involving labor productivity and the technological variable of RDI (incidence of participation in R&D) was statistically significant (f-stat) and hence we interpret the results in this section (see Table 14).

The relationship between RDI and LNVAL is statistically insignificant suggesting that firm performance among SMEs does not depend on their participation in R&D activities. An interesting result is the inverse correlation between firm-size and firm productivity demonstrating that smaller firms enjoy higher productivity than larger firms.

The relationship between firm size and labor productivity is negative and statistically highly significant demonstrating that smaller firms are more productive than larger firms. In fact, the results show that for every 1% increase in employment size labor productivity

will fall by 0.45%. Despite the negative bias on access to finance, small firms have surmounted the barrier to be more productive than large firms.

Table 14. Productivity, and R&D Incidence and Firm Size
OLS: LNVAL= c + β_1RDI + β_2LNEM + μ

	Coefficient	Std Error	t-Statistic	Probability
C	3.823***	0.517	7.388	0.000
RDI	-0.070	0.238	-0.295	0.769
LNEM	-0.448***	0.126	-3.824	0.000
R^2	0.146			
F-Stat	7.264***			
N	151			

Note: *** and ** refer to statistical significance at 1% and 5% respectively; industry dummies are not reported.
Source: Computed from ERIA Survey (2010).

6.4. Firm Size and Technological Capabilities

The model fit (LR-stat) in the probit estimation carried out between firm size and incidence of R&D participation was statistically significant and hence the results are interpreted here.

The relationship between log labor productivity and incidence of participation in R&D was inverse and statistically significant demonstrating that small firms are likely to undertake R&D more than large firms. This is interesting and lends evidence to support Audretsch's (2002) observation that small firms can be dynamic.

Table 15. R&D and Firm Size
Probit: RDI= c + β_1LNEM + μ

	Coefficient	Std Error	z-Statistic	Probability
C	0.375	0.367	1.022	0.307
LNEM	-0.248**	0.116	-2.146	0.032
LR(Stat)	4.686**			
N	151	RDI=1	53	
		RDI=0	98	

Note: ** refer to statistical significance at 5% respectively.
Source: Computed from ERIA Survey (2010).

The statistical exercise produced interesting results. Taken together, the results show that small firms remain disadvantaged when it comes to access to finance, but they have not allowed the finance barrier to hamper productivity, nor participation in R&D activities. Indeed, firm size is inversely correlated with labor productivity, and incidence of participation in R&D. The lack of a statistical relationship between incidence of R&D and labor productivity shows that it is not a major influence, but this could also be a consequence of very low export-intensities among the firms.

7. Conclusion

This paper first analysed the assessment of *meso* organizations on government policy and the environment facing SMEs in Malaysia. In the second exercise, it sought to evaluate the financial environment and to interpret its impact on the economic performance and technological capabilities of SMEs in Malaysia. In the firm level analysis, the paper first sought to assess, the ease of access, sources and cost of finance faced by SMEs in Malaysia. We then examined the economic performance and technological capability of the SMEs in the sample.

The assessment by the *meso* organizations suggests that SMEs enjoy above average support from the embedding environment. Arguably the most serious problems reported by the *meso* organizations are the lack of use of electronic transactions for approval, and the absence or lack of coordination with regulatory bodies.

Micro-finance was not reported as important at all in the sample, though the government has through Bank Negara Malaysia (Central Bank), launched a number of instruments to promote it. In fact, a small percentage of firms in the size category of 6-49 reported accessing it, but none of the firms in the size category of 1-5 reported enjoying such an instrument. The categories 1-99 reported using micro-finance at the time of start-up but the incidence in all categories was small.

The results show that there is an obvious bias in the financial environment facing the smaller firms, which is reflected in the strong inverse relationship between access to finance and firm-size. Access to finance was also inversely correlated with labor productivity, which shows that the more productive firms have less access, or simply that the cost and other terms of external capital is too high for the better performers. Given that several firms reported having declined to pursue external funds on the basis of the terms and conditions the inverse relationship may actually show that the better performers who have the option of preferring internal sources show higher labor productivity than those who have received external funds.

Finally, the results show that small firms in Malaysia have been more dynamic than large firms among SMEs of size less than 250. The relationship between firm size, and labor productivity and incidence of participation in R&D were inversely correlated.

The Malaysian evidence shows that governments should review their financial instruments to ensure that preferential credit is matched to the needs of the more entrepreneurial firms, and should take small firms seriously as they have proven to be more dynamic than the larger SMEs in Malaysia. Small size should not be seen as a deterrent to participation in R&D activities.

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Appendix 1: Correlation Coefficient Matrix, Sampled Firms, Malaysia, 2009

	FR	LNEM	LNVAL	FO	A	RDI	IND
FR	1.000	0.224*	-0.136	0.077	-0.012	0.030	0.037
LNEM	0.224*	1.000	-0.277	0.035	0.228*	-0.053	0.056
LNVAL	-0.136	-0.277*	1.000	0.148	-0.022	-0.015	0.195
FO	0.077	0.035	0.148	1.000	0.012	0.014	0.004
A	-0.012	0.228	-0.022	0.012	1.000	-0.113	0.167
RDI	0.030	-0.053	-0.015	0.014	-0.113	1.000	-0.044
IND	0.037	0.056	0.195	0.004	0.167	-0.044	1.000

Note: * - Excessive correlation.
Source: Computed from ERIA Malaysia survey (2009-10).