

REGIONAL DEVELOPMENT POLICY AND SMALL MEDIUM ENTERPRISE FINANCIAL PERFORMANCE

Stuart Locke

Department of Finance, Waikato Management School, Private Bag 3105, Hamilton, New Zealand.

ABSTRACT: This paper reports on an investigation into the potential to use the financial ratios of New Zealand small businesses to discriminate their location as an aid in the accurate targeting of regional economic development programs. To the extent that there are clearly identifiable differences in performance and financial structure for urban and rural firms this could be significant for small business policy development and the efficient implementation of strategies. An expanded awareness of the role of small business in employment generation and sustainable economic growth has resulted in more government attention being directed toward the sector. As government becomes more active in working for and with small business it is important that scarce resources should not be wasted but directed toward gaining the best pay-off. The paper discusses the data sources, the statistical testing, the results, and the interpretation of the findings and finally a range of policy implications.

1. INTRODUCTION

Government policy, in New Zealand, has increasingly incorporated strategies supporting economic growth, including programs that encompass the small medium enterprise (SME) sector. The initiatives are directed toward reducing compliance cost, regional development and maximising expected value added through export encouragement. The aim of this study is to analyse subsets of SMEs distinguished by their regional base to determine whether there are detectable structural differences which may be of importance in maximising the outcomes of government programs directed toward improved economic growth.

One target mooted at the last national election, in 2002, was to move New Zealand into the top half of the OECD rankings for income per capita. At the opening of the parliamentary session The Governor General, delivering the Speech from the Throne, observed that the new government "*sees its most important task as building conditions for increasing New Zealand's long term sustainable rate of economic growth*".

That broad theme enunciated in 2002 continues to be an important target. The head of Treasury, speaking at a conference in mid 2004 noted that:

If New Zealand is to catch-up to OECD average level of per capita GDP then New Zealand will need to grow faster than average OECD growth, which means growing faster than some countries. Just how challenging that will be will depend on how fast other countries above and below us perform. To catch up with the OECD median in ten years for example, New Zealand per-capita GDP has to grow approximately 2% more on average per annum than the OECD median for the next 10 years. Over a 20 year horizon the required

rate is about 1% more than the OECD. (Whitehead, 2004)

The SME sector is increasingly recognised as an important component of the economy. Government continues implementing a range of policy initiatives directed toward providing stable macroeconomic conditions, enhancing labour productivity, regional development and removing constraints to trade, etc. Of particular significance, to this study, are a number of policies directed toward improving productivity in the SME sector and targeting key areas with a growth innovation framework (GIF).

The initial proposals regarding the growth innovation framework (GIF) were promulgated by Prime Minister Helen Clark (2002) as a key plank in the Government's policy framework for economic transformation. The framework, *Growing an Innovative New Zealand*, has three key elements:

- Strengthening the economic foundations,
- Investment in innovation, talent and global connectedness, and
- Sectoral policies focussing on the biotechnology, ICT and creative sectors.

Subsequently the GIF has been extended to include regional development as a key component of current economic development efforts. Significant drivers of growth arise at regional and local levels through the opportunities and incentives provided by region-specific attributes. The government has adopted a partnership approach to regional development. This includes the Regional Partnerships Programme under which local government, Iwi¹ and economic development professionals work together on economic development strategies to make the most of regional strengths and local resources. Central government provides support to build the capacity of each region in establishing the foundations for sustainable economic growth (MED, 2004b). The strategy, which is regularly updated², is structured around six 'channels' through which firms can develop capability:

- Formal and informal learning,
- Mentoring and advisory services,
- Standards and certification,
- Learning through networking and knowledge sharing,
- Business improvement models and assessment tools, and
- Research and benchmarking.

2. SME SECTOR IN NEW ZEALAND

The 2004 report of Small Business Advisory Group, an independent committee established by government to make recommendations relating to SMEs, made 19 such recommendations. There were no links, however, with the regional economic development policy of government.

MED (2004b, p12) addresses the size of output attributable to SMEs. Using

¹ Iwi are tribal groupings of Maori people, the indigenous people of Aotearoa/New Zealand.

² www.businesscapability.org.nz.

value-added³ as a measure of the contribution to total output in the economy that SMEs accounted for 38 percent of total output in 2002, with small enterprises making up over half of that portion.

The regional make-up of SMEs, as shown in Figure 1 sourced from MED 2004a, is heavily biased toward Auckland, reflecting the concentration of population in that region. Other regions while exhibiting numbers far less than Auckland, nevertheless, have a significant number of firms that may present potential for stimulating employment and product growth.

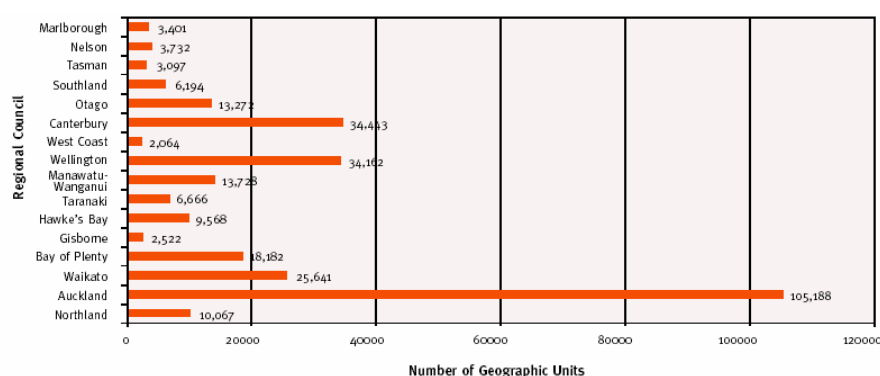


Figure 1. Number of Geographic Units with 0-19 Full-time Equivalent Employees by Regional Council

From Figure 2 it is apparent that the proportion of the total employed in SMEs varies from 36.7 percent in Wellington, the nation's capital with a strong public sector base, to 57.3 percent in Tasman, a tourist oriented horticultural and agricultural region.

The linkage between regional policy and SME performance requires further research. The relationship between regional development and SME appears to have multiple themes. Research focussed on analysis of disparities between regions has changed in emphasis in recent years. The traditional approaches were concerned with natural advantage focussing on resources, assets, population and income (Westhead 1995). Clusters, networks and economies of

³ Value-added is calculated as gross output minus intermediate consumption and is provided with the following caveats:

- Value-added is calculated as gross output minus intermediate consumption. This should only be seen as a proxy. While source data used for this feed into the system for National accounts from which official GDP is calculated, these data have not been through this process and therefore only provide an indicator.
- The numbers have been deflated by a generic deflator which is not output specific and are not related to GDP published by Statistics New Zealand.
- These data are not standard output and as such are not available in any other cross-tabulations.
- Figures expressed in terms of 1997 dollars.

agglomeration have increasingly gained favour as sources of explanation (Krugman 1998) and this new economic geography provides several approaches to investigating regional development and SMEs. Karlsson and Dahlberg (2003) discuss three factors they consider to be of particular importance regarding how the regional context relates to SME performance. First, social capital transmission is typically bounded by regional differences. This view is supported by Westlund and Bolton (2003). They describe how the social capital platform enhances SME surplus generation, noting that social capital variability is consistent with spatial differences in SME performance. Second, knowledge is suggested as being rooted in regions. The accession and participation in knowledge requires geographical proximity. SME clusters, industry training organisations and tertiary education provision tend to have a regional base. Third, the regional dimensions of geographical transaction costs, internal and external economies of scale, and self-reinforcing growth are of significance in determining sustainable SME performance.

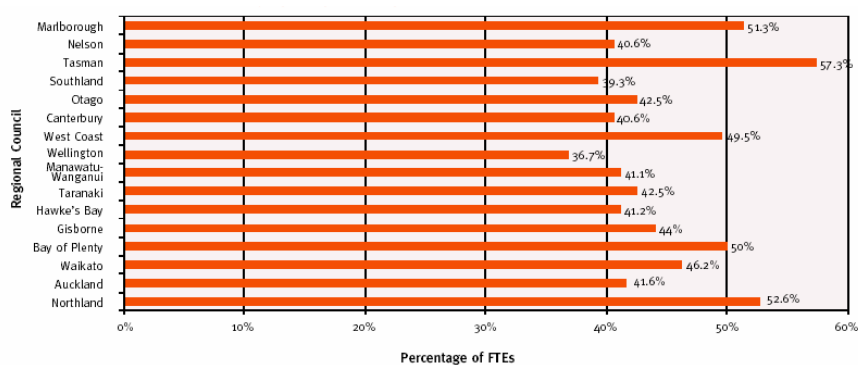


Figure 2. Percentage of Full-time Employees Employed by SMEs by Regional Council.

The potential nexus between SME performance and regional development nevertheless remains obscured. Performance can be reviewed as survivorship, growth measured in terms of sales volume, asset base, number of employees etc, or financial performance in terms of net income per employee or return on assets. Similarly, SMEs may contribute to regional development through new start-ups, growth in existing business through expansion or acquisition, or lower death rates in business. While export oriented new start-ups have a glitzy appeal, the general enhancement of economic performance of SMEs (including growth in income per employee, growth in return on assets, and workforce growth) may prove to be more valuable.

A strong financial performance is likely to ameliorate the likelihood of the small business being involuntarily wound-up, and enhance the potential for expansion in terms of both workforce and output through acquisition, introduction of new lines and greater volume.

3. REGIONAL PERFORMANCE

The lack of regional economic accounts poses a range of difficulties for the assessment of regional economic performance. A recent official study (MED, 2004a) found:

- Economic activity and growth are unequally distributed amongst New Zealand regions.
- The inequality between New Zealand regions is not substantial, with some notable exceptions.
- Canterbury and Wellington are regional star performers, while Northland has under-performed.
- A significant portion of inter-regional economic variation appears to be explained by labour market and demographic variation (although this partly relates to the method of regional GDP estimation employed).
- Gaps in regional data make explaining inter-regional economic variation difficult.

The report considers a number of industrial classification groupings such as government, agriculture, etc. and compares the share of nominal national GDP with regional GDP. The proportion of national GDP is plotted on the Y axis and the proportion of regional GDP is plotted on the X axis. Figure 3, which is Figure 22 in the MED report, presents the position for the Waikato region. It is apparent that the Waikato region is strongly represented by the Agricultural sector, plotting well to the right of the diagonal line. Anything plotting on the diagonal indicates the region is equal to the national average. The Waikato region is under represented by business services.

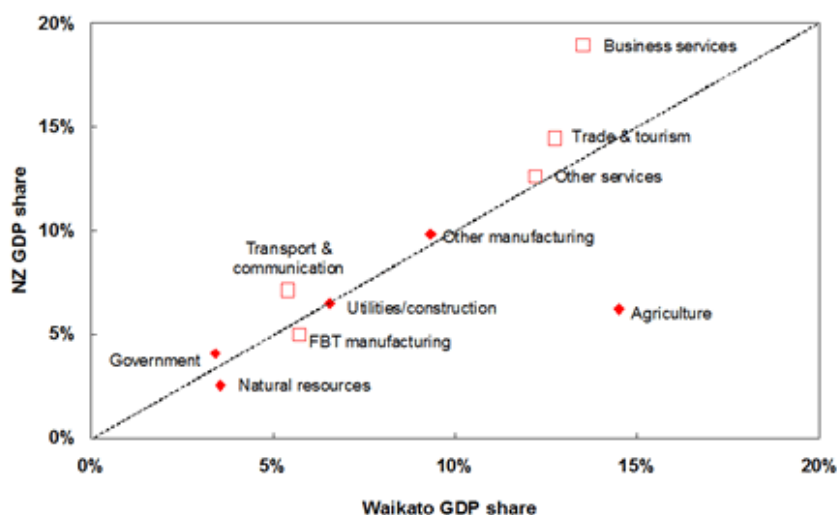


Figure 3. Waikato's Industry Profile.

New Zealand Trade and Enterprise is the government agency charged with delivering regional development programmes. The primary thrust of their services includes:

1. Business development:
 - businesses starting up and at an early stage of development.
 - businesses seeking to grow and internationalise: including new exporters, high growth businesses and other exporters.
 - investment services, providing New Zealand business information as well as extensive networks for investors seeking existing and start-up New Zealand-based ventures with excellent future potential.
2. Business Partnerships:
 - Supporting companies working together in export networks and regional and national clusters to achieve higher growth.
3. Regional Development:
 - Working with and funding regions to grow by encouraging them to focus on their regional advantages.
4. Industrial Capability Network:
 - Providing access to government markets through a low cost, one port of call service.

(New Zealand Trade and Enterprise, 2004).

4. SME FINANCIAL STRUCTURE

Financial ratios are widely used for investment analysis and other purposes relating to large and small businesses alike. It is generally accepted that certain ratios are of importance in terms of performance while others are more closely associated with liquidity and solvency. These matters are widely discussed in accounting texts and more specialist books directed toward financial statement analysis, eg White et al (2003).

Financial ratios are widely used in lending decisions by financial institutions, credit rating, performance assessment and forecasting future performance. The movement to use more than one financial ratio in the decision calculus, ie multivariate analysis rather than univariate analysis increasingly leads to more sophisticated statistical techniques. Altam (1968) used discriminant analysis to develop and test a bankruptcy prediction model. The study involves dividing a sample of companies into two groups, viz those that failed and non-failed. Each financial ratio is arranged as a descending array, ie from highest to lowest value. The discriminant analysis technique determines the optimal cut-off point for discriminating between the failed and non-failed groups.

Subsequent studies have tended to focus on many of the same ratios. Gentry, et al (1984) reported on 14 multivariate studies noting that liquidity and solvency ratios were the most commonly used followed by profitability and activity ratios. Walsh (2004) provides examples of how financial ratios vary between industries and between countries. Potentially, similar differences might be detected between SMEs based in large city, provincial city, town and rural environments.

If the financial structure of small business does differ between urban, provincial and rural areas, then this may provide a clearer guidance as to where to target policies in order to affect growth increases. A sufficiently robust set of financial data is a precursor to such an empirical investigation.

5. DATA

Financial statements for the SME sector are not readily available in New Zealand as there is no requirement for smaller businesses to file annual reports, as is the case for larger companies. Although taxation returns are compulsory these are not available in the public domain. For the purposes of this study data for a sample of small businesses are extracted from an annual survey of SMEs undertaken by the Management Research Centre of the University of Waikato for the New Zealand Institute of Chartered Accountants.

The annual financial statement survey, which has been conducted for 27 years, was modified in 2002 to allow for tracking of individual businesses through a confidential unique numbering system. Data on 35 financial ratios, as shown in Table 1, are available for several thousand businesses and it is possible to match 1520 firms as present in each of the surveys for the years 2002, 2003 and 2004. Of the 1520 firms in the survey there are some firms for which there are missing data relating to some variables, resulting in a usable samples of 1453 firms in 2002, 1516 firms in 2003 and 1514 firms in 2004.

Table 1. Financial Ratios for Small Medium Enterprises

1	Income – revenue and fees	19	Working owners (fulltime equivalents)
2	Cost of Goods Sold	20	Employed staff excluding owners
3	Gross Profit	21	Income revenues and fees per owners
4	Administration	22	Gross profit per person
5	Advertising and Promotion	23	Overheads (excluding wages) per person
6	Interest	24	Total Wages per number of staff
7	Occupancy expenses	25	Operating profit per person
8	Plant and equipment	26	Growth in total income
9	Telephone and Fax	27	Rent of premises
10	Vehicle expenses	28	Debt to total assets
11	Wages employees and labour only contracts	29	Times interest earned
12	Other expenses	30	Return on assets
13	Total Overheads	31	Working capital
14	Operating profit (% income)	32	Quick Ratio
15	Operating profit	33	Debt collection period
16	Net profit (% of income)	34	Inventory turnover
17	Net profit	35	Assets per person
18	Net profit per working owner		

The actual collection instruments are completed by chartered accountants, with the permission of their client businesses. Aggregate results are made available to members of the Institute of Chartered Accountants and extensively

used for benchmarking purposes. Prior research, using the MRC data has established the robustness of the data (Locke, (2002), Locke and Scrimgeour (2003)).

In addition to the financial data on each firm there is additional information covering, among other things, their location, number of years in business, and industry type. The geographic location data covers both region and rural/urban split. It is this rural urban split which allows for the firms to be partitioned into two sets, namely those operating in rural settings and those operating in cities.

6. ANALYSIS

The analysis is directed toward establishing the extent to which it may be possible to determine accurately, based upon their respective financial ratios, whether a business is located in a rural or urban centre. The SPSS software is used for the statistical analyses reported. First, the means of financial statistics were calculated for each of the regions and then differenced deducting the mean of Rural regions from the mean of Urban regions. It can be seen in Table 2 that for the majority of financial aggregates (80 percent) that there is a consistency in the sign of the difference between 2002 and 2004. The cost structures appear greater in the urban areas with the exception of transport and telecommunication which is not surprising. However, overall the return on assets (ROA) is roughly comparable. To check that these differences were significant further tests are needed.

Second, the financial ratios for the 1520 firms are subjected to an analysis of variance test (ANOVA), to determine if any of the ratios are consistently different for firms located in rural regions compared to urban locations. The results for this analysis are reported in Table three. It is apparent that there some financial aggregates that are not statistically significantly different, at the 5% significance level in each of the three years. However, there is a degree of uniformity and it is particularly apparent in 2004 that additional variables are significantly different. The reason for this lies in changes to the data collected for 2004 where additional information was collected in the survey adding additional financial variables to the dataset. Accordingly, two possibilities are present. Either work only with the 2004 data or work with the earlier years using only the data that are statistically significant in every year.

Several further statistical procedures are undertaken to ensure the robustness of the analysis. As the power of test statistics are affected by such issues as the variance of the ratios refinements are followed to limit the potential error of determining the ratios are the same between regions when they are different and vice versa⁴. Post hoc tests⁵ are undertaken to minimise the likelihood of finding a specific ratio differs between regions when it does not.

⁴ Levene test

⁵ The tests used are Tamhane, Dunnett T3, Games-Howell and Dunnett C.

Table 2. Difference between Urban and Rural Financial Aggregate Means

Geographic location	2002	2004	Consistency
Income	619228.3696	904088.0955	Yes
COGS	2735953.7031	3826565.8608	Yes
Gross profit	2424282.7102	3707501.6019	Yes
Admin	0.1755	0.1248	Yes
Advertising	0.0934	0.1334	Yes
Interest	0.1018	0.2191	Yes
Occupancy	0.3143	0.4410	Yes
Plant	0.0275	0.0804	Yes
Telco	0.0482	0.0565	Yes
Vehicle	-0.0519	-0.0304	Yes
Wages	0.5497	0.5732	Yes
Other	0.4246	1.1940	Yes
Tot OH	4.6523	2.8496	Yes
OP Prof %	-0.0823	1.7772	No
Op Prof	45246.6823	127238.4033	Yes
Net Prof%	0.0486	1.8956	Yes
Net Prof	49194.6110	136666.6714	Yes
NP/Wo	47177.2088	94229.9302	Yes
WOs	-0.1003	-0.2286	Yes
Employees	1.8206	2.6449	Yes
Y/person	139875.6674	88685.2773	Yes
GP/person	84956.2162	57738.3905	Yes
OH/person	37364.2418	34180.1778	Yes
TotWage/staff	0.0000	3557.0859	Yes
OP/person	18411.7792	20631.5113	Yes
Growth tot Y	-3.3175	5.4630	Yes
Rent	24195.0400	29314.6144	Yes
D/A	8.7239	7.4946	Yes
Times Int cov	353.9144	-497.2753	No
ROA	0.0692	0.1629	Yes
Work Cap Ratio	-1.0035	0.1472	No
Quick ratio	-0.7772	0.1530	No
Debt Col period	10.2243	8.7117	Yes
Invent Turn	-26.6775	26.2910	No
A/person	134732.6490	282049.3484	Yes

Table 3. Variables Statistically Significant at 5 Percent Level

Variable\Year	2002	2003	2004
Income	√	√	√
COGS	√	√	√
Gross profit	√	√	√
Admin	√	√	√
Advertising	√	√	√
Interest	X	X	X
Occupancy	√	√	√
Plant	X	X	√
Telco	√	√	√
Vehicle	X	X	X
Wages	√	√	√
Other	X	√	√
Total Wage/staff	X	X	X
Operating Profit %	X	X	X
Operating Profit	X	X	X
Net Profit %	X	X	X
Net Profit	X	X	X
Net Profit/Working owner	√	X	X
Working owners	X	X	X
Employees	√	X	√
Income/person	√	X	√
Gross Profit/person	√	X	√
Overhead/person	√	X	X
Total Wage/staff	√	X	√
Operating profit/person	√	X	√
Growth in total income	X	√	√
Rent	√	√	√
Debt/Assets	X	X	X
Times Interest Covered	X	X	X
Rate of return on assets	X	X	X
Working Capital Ratio	X	X	X
Quick ratio	X	X	X
Debt collection period	√	X	X
Inventory Turnover	X	X	X
Assets/person	√	X	X

Third, the 1520 firms are subjected to a discriminant analysis to investigate whether knowing their ratio values will allow for accurate prediction of where the business is located. Discriminant analysis is applicable for building “a

predictive model of group membership based on observed characteristics of each case. The procedure generates a discriminant function (or, for more than two groups, a set of discriminant functions) based on linear combinations of the predictor variables that provide the best discrimination between the groups.” (Field, 2003, p 342).

The analysis, using the SPSS stepwise discriminant routine, was capable of correctly discriminating rural firms in the sample with varying degrees of success. The process selects those variables which add to the discriminating procedure based on selected key statistics. For the purpose of this analysis Wilks' lambda, Mahalanobis' distance, and Rao's V were used. The classification results for the predicted group membership, of the rural firms, are shown in Table 4.

Table 4. Predicted Group Membership

Year	Percentage of correct estimation
2002	82.4
2003	74.4
2004	77.2

The structure matrices for the three best variables are presented in Table 5 for the three successive years.

Table 5. Discriminant Function Coefficients

Variable/Year	2002	2003	2004
Rent	.536	.797	.844
Telco	.633	.734	.779
Growth in Income	-.018	-.417	.322

7. FINDINGS

The findings suggest there are financial differences in the ratios of SMEs in different geographical regions. First, it is observed that for the majority (80 percent) of the financial aggregates that when the mean of the urban area is deducted from the mean of the rural area for any particular financial aggregate that when urban is larger in 2002 it is also larger in 2004, i.e. there is a consistency in the sign of the first differences. It is interesting to note that revenue and assets are higher in urban areas as are expenses with the exception of transport and telecommunications, however, rate of return on assets are not significantly different.

Second, the ANOVA testing revealed that there were several financial aggregates that were statistically significantly different between the urban and rural regions. With some new aggregates being collected in 2004, for the first time, the differences were even stronger in the last year. Nevertheless, there are 9 aggregates that are statistically different between regions in all three years.

Third, the discriminant analysis is capable of correctly discriminating approximately 80 percent of those businesses which are rural located on the basis of their financial aggregates. When the discriminant function estimated on the 2002 data is applied to the 2004 data the correct prediction fell to 77 percent. Refinement of the classification scheme partitioning the sample further in terms of size determined by revenue or employees or type of activity may further strengthen the capacity of the modelling to accurately estimate which businesses are rural based. The ability to discriminate between rural and urban firms based on their financial structure is important in terms of modelling the likely impact of economic or political policy changes. The costs of occupancy and communication differ significantly between urban and rural firms. Changes to legislation, such as unbundling the telecommunication loop will impact more upon rural than urban business. It is possible that competition in the telecommunication sector will lower urban communication cost even further, with limited marginal productivity gains to business while increasing the costs in rural areas.

Government policy directed toward lowering compliance costs, lowering telecommunication costs, such as through the promotion improved information communication technology, and lowering transport cost through enhanced infrastructure will most likely improve the financial performance of SMEs. As both telecommunication and transport are a relatively higher percentage of revenue in rural rather than urban centres these should assist the rural areas. The e-government strategy, regulatory oversight of telecommunication provision, and the rural infrastructure initiatives appear to be appropriate.

Where government policy is directed toward SMEs with growth, and especially exports oriented growth, the financial structure in terms of growth readiness is important. However, the findings to date do not indicate there is a clear statistical selection scanning process likely to emerge. The availability of a skilled labour pool is likely to be important, especially in terms of the prevailing full employment environment. Non-urban SMEs have a higher proportion of owner participation in the staffing. This is not necessarily a function of size and growth, however, further work is needed. However, the data indicates that firms in the upper quartile of growth (ratio 26) do have a higher number of employees per owner. A tentative hypothesis, nevertheless, is that employment readiness in non-metropolitan areas may be lower. This could have implications for rural education, apprenticeship schemes and tertiary/community education.

8. CONCLUSION

The analysis has indicated that there are discernible and consistent differences in the financial structure of SMEs operating in urban and rural areas of New Zealand. As Government is becoming more active in policy formulation and implementation to assist the small business sector there is an opportunity to include this developing knowledge of financial structure divisions into the calculus. The general thrust of policies is twofold. First, reduce compliance cost and second, to assist businesses or clusters of businesses that look likely to exhibit significant growth, especially export oriented growth.

The regional development policy does not appear to be sufficiently clear, at this juncture, to establish a clear nexus between SME financial structures and government policy. To the extent that policy is looking for stability, employment growth and non-inflationary expansion, then there are actions that appear appropriate, based on the findings of this research, such as the encouragement of more employees and less owner concentrated participation. This is likely to be of greater significance in the non-urban centres.

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