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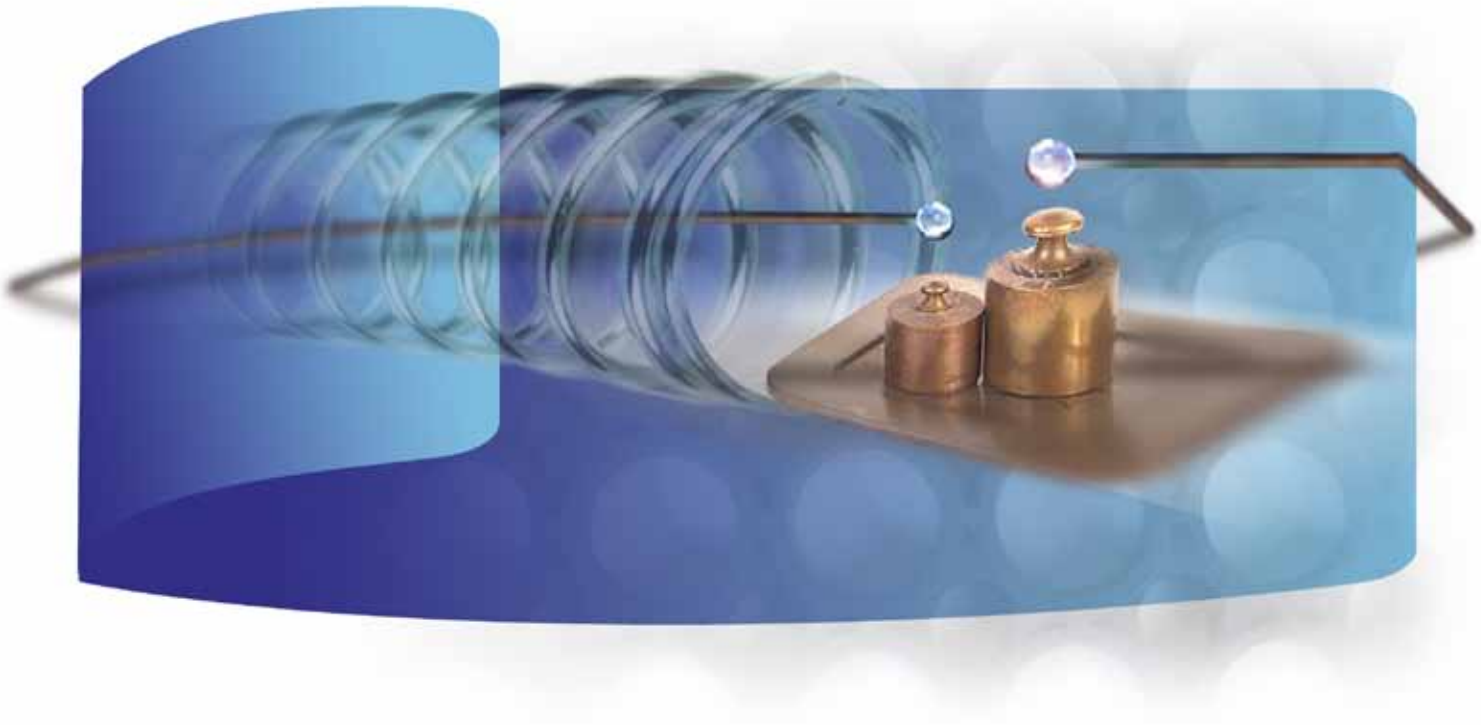
# Small and Medium-Sized Entreprises Growth Study: Actual vs. Sustainable Growth

**March 2013**



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Cat. No. Iu188-110/2013E-PDF
ISBN 978-1-100-22091-8

Aussi offert en français sous le titre *Étude sur la croissance des petites et moyennes entreprises : croissance réelle par rapport à croissance durable*, mars 2013.

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## Acknowledgements

The assistance of many people was invaluable for the production of this research paper. A special thanks goes to Richard Archambault, Research Manager at Industry Canada, Martin Lalonde, Chartered Financial Analyst of Rivemont Investments, and Misa Palecek, Chartered Financial Analyst of Industry Canada for their much appreciated feedback and suggestions. A thank you also goes out to all attendees of the Small and Medium-sized Enterprises Sustainable Growth presentation hosted by the Industry Canada Research Coordination Committee in September 2012.

## Abstract

A small and medium-sized enterprises (SME) growth study aimed to identify any misalignment between SME actual growth rates and SME sustainable growth rates. Summary financial statements on approximately 850 000 Canadian SMEs over the 2000–10 period were gathered to facilitate the analysis, producing information on firm profitability, asset turnover, leverage, returns on equity, retention rates and dividend payout rates. Using the "Higgins Sustainable Growth Model," analysis revealed that, over the 2000–10 period, Canadian SMEs had the financial infrastructure in place and normal earnings capacity to support an average growth rate in sales of approximately 7.3 percent per year without the need to raise additional financing. Sustainable growth rates differed across size categories (small, medium, large) and sectors, but were only statistically significantly different across sectors. A misalignment between actual and sustainable growth rates for SMEs was discovered. Businesses whose actual growth rates were statistically aligned with sustainable growth rates were large or operated in the primary sector or the professional, scientific and technical services sector.

# I. Introduction

In recent years there have been increasing concerns that "actual business growth rates" are misaligned with "sustainable business growth rates." However, research does not define sustainability nor does it quantify the degree of misalignment. Most research looks at actual growth rates exclusively. For businesses, a disregard for growth sustainability in any expansion plan could lead them to grow too quickly. That is, they end up growing more quickly than they can afford given their financial resources, dividend policies and earnings capacity. In such situations, businesses are typically forced to write new debt, issue equity, sell assets to finance their growth, or scale back the rate of expansion.

The purpose of this study is to take an in-depth look at several questions regarding the nature of sustainable growth rates in Canada for small and medium-sized enterprises (SMEs) and to better understand the misalignment between actual and sustainable growth rates. The questions addressed include:

1. *How much growth could Canadian SMEs have sustained between 2000 and 2010?*
2. *What factors drove changes in sustainable growth rates for Canadian SMEs over the period?*
3. *How much growth could small, medium- and large-sized businesses each have sustained between 2000 and 2010?*
4. *In which sectors could SMEs have sustained the highest levels of growth?*
5. *Did Canadian SMEs grow at, above, or below their sustainable growth rates?*
6. *Did small, medium- and large-sized business each grow at, above, or below their sustainable growth rates?*
7. *Did SMEs within all sectors grow at, above, or below their sustainable growth rates?*

The report is organized as follows. Section II provides the theoretical background on the concept of sustainable growth. Section III provides the derivation of the sustainable growth rate. Section IV discusses data collection methodologies. Section V presents empirical findings along with possible explanations of the findings. Section VI discusses caveats of the sustainable growth model, and lastly, Section VII presents conclusions and implications. Key definitions and a bibliography are also included.

## II. Theory

The concept of sustainable growth, originally termed affordable growth, can be traced back to the Hewlett-Packard company in the 1950s. David Packard pioneered the concept to describe to shareholders the maximum rate of growth in sales that the firm would achieve given its level of profits and without raising any additional capital (Packard, 1957). Packard said that the company had maintained a 43 percent growth rate from 1950 to 1957 by using a formula to limit its growth, that is limiting growth in sales to a level that could be supported by the firm's profits. Packard stressed that to grow the business' sales at too fast a pace would almost certainly lead to financial trouble. Packard recognized that for most companies there was no such thing as unlimited growth, nor was there such a thing as unlimited capital. Packard knew that true long-term growth was only possible to the extent that it was supported by growth in profits.

Kisor's article "The Financial Aspects of Growth" published in the *Financial Analysts Journal* in 1964 also introduced concepts that paralleled Packard's. Kisor argued that business owners too often, and incorrectly, assume that if demand for the firm's products increases over time, so too will the supply of financial resources needed to support the higher level of demand. However, financial history is strewn with companies and whole industries that have been unable to raise additional capital in periods of growth.

Babcock built on this idea in his 1970 paper "The Concept of Sustainable Growth" published in the *Financial Analysts Journal*, where he explained that growth could be either sustainable growth or unsustainable growth.

Sustainable growth is growth that is driven by the normal earnings power of the company; it is growth that can be supported through the prudent management of financial resources; it is growth that is fundamentally not dependent on a creditor's willingness to supply the firm with additional capital. Unsustainable growth is growth that fluctuates above or below these normal levels. It can be supported, potentially to an unlimited extent, but requires continued inflow of investment.

Work conducted by Robert C. Higgins, author of *How Much Growth Can a Firm Afford?* (1977), corroborated findings of the other authors. Higgins stressed that true long-term growth was performance driven. Higgins demonstrated that any business on any growth path different from its sustainable growth path would not, or should not, be sustained long-term. Businesses growing at a faster rate would not be able to afford the assets necessary to support the higher level of sales given its level of profitability and earnings retention policies. Businesses growing at a slower rate than their sustainable growth rates would have more than enough financial resources to cover their investments and, acting as a rational economic agent, would return capital to owners or pay down its debts.

Higgins stressed that the concept of sustainable growth was particularly important because it forced management to consider whether the firm's growth strategies were compatible with the firm's growth capabilities and to identify, and resolve, conflicts between the two. A company with excellent growth opportunities but without sufficient long-term financial resources in place to exploit those opportunities would not grow. Likewise, a firm with the necessary financial infrastructure in place to pursue higher growth opportunities but without the long-term ability to identify and exploit those opportunities would also not grow.

Costa (1997) explained that a firm's sustainable growth rate is like a "break-even" growth rate. Just as an operating break-even point reflects a minimum level of sales needed to offset fixed production cost, so does the sustainable growth rate reflect the maximum rate of growth in sales that a firm can maintain given its resources and earnings capacity.

## III. Derivation

### *The Sustainable Growth Rate*

The standard model taught and used in practice today for calculating a firm's sustainable growth rate was derived by Higgins—the Higgins Sustainable Growth Model (HSGM). Higgins' derivation relied on four key assumptions.

Businesses:

1. Grow sales as rapidly as market conditions permit;
2. Will maintain a constant asset-to-sales ratio and net profit margin;
3. Will not, or cannot, issue new equity; and
4. Want to maintain a target debt-to-equity ratio and dividend policy.

The first two assumptions are made to keep the model simple, to reinforce the interdependencies of model inputs, and to provide a basis of interpretation when constrained to a single year's worth of data. The rational behind the third assumption, which is consistent with observed evidence, is that most business owners are reluctant or unable to issue new equity (Donaldson, 1984). This could be due to the costs of issuing new equity, business owners' desires to retain ownership control and preserve share value, and/or the sheer unavailability of equity financing. Data from the 2004 Statistics Canada *Survey on Financing of Small and Medium Enterprises* showed that only about 1 percent of SMEs seek equity financing in any given year. Furthermore, only about 46 percent are successful in fulfilling those equity requests. This is low compared to 81 percent for debt and 96 percent for lease financing requests. If a business is able and willing to issue additional equity, it can technically achieve any sustainable growth rate.

The rational behind the fourth assumption is that, while it is true that growth from the issuance of debt can be sustained for long periods of time, most lenders are only willing to extend debt up to a certain debt-to-equity ratio. For the purpose of this analysis, it is assumed that this ratio is held constant and that,

while lenders are willing to continue to extend debt, they will only do so at this ratio. This assumption implies that a firm's debt load can only grow at a rate proportional to the rate of growth in retained earnings.

Together, these assumptions concentrate the analysis and model interpretation at a single point in time to one of a steady state. Because in reality model inputs always show year-to-year fluctuations, sustainable growth rates for 11 years have been computed and are assessed in this analysis.

To illustrate the derivation of the sustainable growth rate, Higgins used the following notation:

p = Net profit margin on new and existing sales

d = the target dividend payout ratio ((1-d) is the target retention ratio)

L = the target debt-to-equity ratio

t = the ratio of total assets to net sales on new and existing sales

s = sales at the beginning of the year

$\Delta s$ = increase in sales during the year

ROE = the firms return on equity

NI = Net Income

Starting with the fundamental accounting equation (Assets = Liabilities + Equity), it is known that over any given time period any change in assets must be subsequently matched by a corresponding change in liabilities and/or equity.

$$\Delta\text{Assets} = \Delta\text{Liabilities} + \Delta\text{Equity} \qquad (1)$$

The objective is to determine how each of these components can be expected to change. Starting with assets, it is known that if a firm experiences an increase in sales of $\Delta s$ over the period, it will need to grow its asset base by $\Delta s$ (t) to support the higher level of sales, therefore:

$$\Delta\text{Assets} = \Delta s(t)$$

Also, since a firm's profit margin is expected to stay constant, a firm experiencing an increase in sales of Δs will generate (s + Δs)(p) in profits. With a constant dividend payout ratio, this will translate into additional retained earnings of (s + Δs)(p)(1 - d). The ΔEquity, therefore, will equal (*s* + Δs)(p)(1 - d).

Lastly, because it is known that a firm maintains a constant debt-to-equity ratio, L, for every additional dollar in earnings a firm retains, a firm can safely raise L in new debt. In total, therefore, ΔLiabilities = (s + Δs)(p)(1 - d)(L).

Substituting each of these expressions into equation (1) yields:

$$\Delta s(t) = (s + \Delta s)(p)(1 - d)(L) + (s + \Delta s)(p)(1 - d)$$

Solving for the growth rate, Δs /s, produces Equation (2) represents Higgins' original sustainable growth formula:

$$\text{sustainable growth} = g = \frac{(p)(1 - d)(1 + L)}{(t) - (p)(1 - d)(1 + L)} \quad (2)$$

Imposing the assumption that the ratio of assets-to-net sales (t) equals 1 allows for further simplification. This assumption implies that a firm's asset growth parallels its sales growth. If a firm wishes to grow its sales by 15 percent, it needs to grow its asset base, whether it be through inventories or property plant and equipment, by approximately 15 percent as well to support the higher level of sales. Then, since (1 + Debt/Equity) = (Equity + Debt)/Equity, Assets = Debt + Equity, and t = 1, equation (2) can be simplified to (where ROE is equal to net income divided by beginning of period equity):[1]

$$g = (1 - d) \times ROE \qquad (3)$$

From this derivation, Higgins demonstrated that, for businesses that are unable to raise additional equity and want to maintain a target debt-to-equity ratio and dividend policy, new financing to fund growth has to come from earnings, the percentage of those earnings reinvested back into the businesses, and any

[1] If ROE is calculated by dividing net income by end of period equity, the expression becomes: g = (ROE x (1 - d))/(1 - (ROE x (1 - d))).

additional sources of debt that their retained earnings can support. Equation (3) reveals that the higher the return on equity, the higher the sustainable growth rate. Also, the higher the earnings retention rate the higher the sustainable growth rate. A firm with an earnings retention rate of 75 percent, for instance, able to maintain a 10 percent ROE, is able to sustain a 7.5 percent growth rate. Firms wishing to grow beyond a 7.5 percent rate would need to reinvest more back into their operations or generate a higher ROE.

### *DuPont Extension*

As demonstrated above, a firm's sustainable growth rate is a function of its return on equity and its retention rate. This formula can be further decomposed by examining those factors that influence ROE (Stowe et al., 2009). Recall, ROE is a measure of the returns earned on owner's investment in the company:

$$ROE = \frac{\text{Net Income}}{\text{Equity}}$$

If a firm earns $150 in income on beginning equity of $1000, the firm has a ROE of 15 percent. ROE can be restated by dividing the numerator and denominator by total sales. It then becomes:

$$ROE = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Equity}}$$

Dividing the numerator and denominator of the second ratio by total assets yields:

$$ROE = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

Substituting this into the sustainable growth formula (Equation 3) reveals that sustainable growth is a function of a retention rate and three component ratios: net profit margins, asset turnover, and a financial leverage multiplier, as shown below.

$$g = (1 - d) \times \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

Firms, therefore, can increase their sustainable growth rates when they increase their retention rates, strengthen their margins, operate more efficiently, and/or when they employ more leverage.

## IV. Data Collection

With the assistance of the Statistics Canada Industrial Organization and Finance Division, 12 years (1999–2010) of aggregate financial statement data reported by over 850,000 incorporated Canadian businesses was collected. Data included assets, liabilities and equity items as reported on their balance sheets and revenues and expense items as reported on their income statements. This data allowed for the computation of sustainable growth rates and an analysis of how they varied over time.

### *Data Sources*

Three data sources were combined to form a census of incorporated businesses:[2]

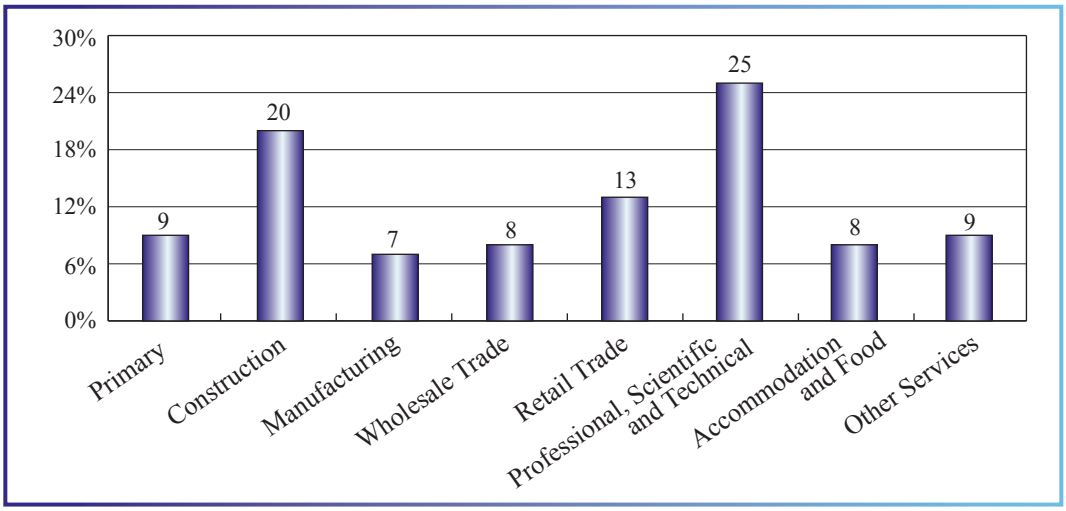
- Annualized data from the Quarterly Survey of Financial Statements (QSFS, record number 2501) obtained from the Industrial Organization and Finance Division at Statistics Canada.
- Data from a survey of provincial or federal level government business enterprises (GBE) that operated in the business sector obtained from the Public Sector Statistics Division at Statistics Canada.
- Administrative corporate taxation data in the form of T2 Corporation Income Tax returns and the General Index of Financial Information (GIFI) obtained from the Tax Data Division at Statistics Canada.

### *Target Population*

The businesses in the data set are distributed across the following industries: primary; construction; manufacturing; wholesale trade; retail trade; professional, scientific and technical services; accommodation and food services; and other services industries (Figure 1).

[2] Information from all three data sources was provided in different formats with different sets of variables. To merge the data, it was necessary to transform all three data sources into a common set of variables that contained a complete set of financial statement information. At the micro level, checks were performed by Statistics Canada on the data to verify internal consistency and identify errors. At the macro level, the data was subjected to a detailed quality review process, including a comparative analysis to prior years. Any material errors were thereby identified and corrected.

**Figure 1: Distribution of Small and Medium-sized Enterprises by Industry, 2010**




Source: Statistics Canada, *Financial and Taxation Statistics for Enterprises*, 2010.

### *Business Size Definitions*

Canadian businesses are classified by Statistics Canada into three broad categories based on their annual revenues—small (less than $5M), medium (greater than $5M but less than $25 million), and large (greater than or equal to $25 million).

### *Outputs*

- Number of enterprises
- Total assets
- Total liabilities
- Total equity
- Operating revenue
- Total revenue
- Operating profit/loss
- Net profit/loss
- Current assets
- Current liabilities
- Federal, provincial and total taxes
- Debt-to-equity ratio
- Net profit margin
- Return on equity

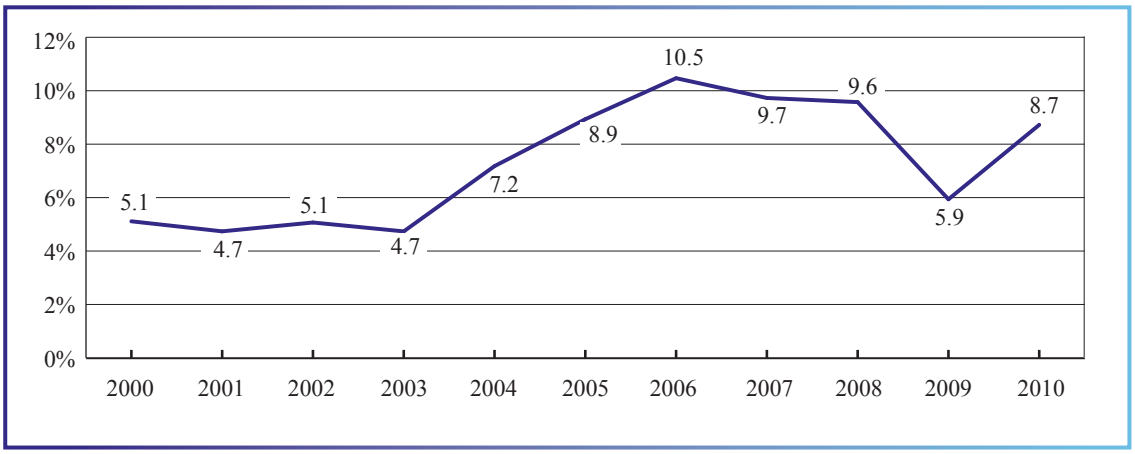
## V. Findings

Main findings from the SME growth study are presented below.

### 1. *How much growth could Canadian SMEs have sustained between 2000 and 2010?*

Sustainable growth rates for SMEs were calculated using the HSGM and are presented in Figure 2. Sustainable growth rates varied from a low of 4.7 percent in 2001 to a high of 10.5 percent in 2006. Prior to 2004, sustainable growth rates followed a stable course, fluctuating between 4.7 percent and 5.1 percent. Sustainable growth rates rose sharply in 2004 to 7.2 percent and continued to rise to 10.5 percent in 2006 during the economic boom. This upswing reversed slightly in 2007 and 2008 as the worldwide financial crisis started to unfold and dropped to 5.9 percent during the 2009 recession. A positive reversal to 8.7 percent was observed in 2010 as the economy stabilized. Over the period SMEs could have financially supported an average growth rate in sales of approximately 7.3 percent given their normal earnings power and without having to raise additional financing.

**Figure 2: Small and Medium-Sized Enterprises Sustainable Growth Rates, 2000–10**



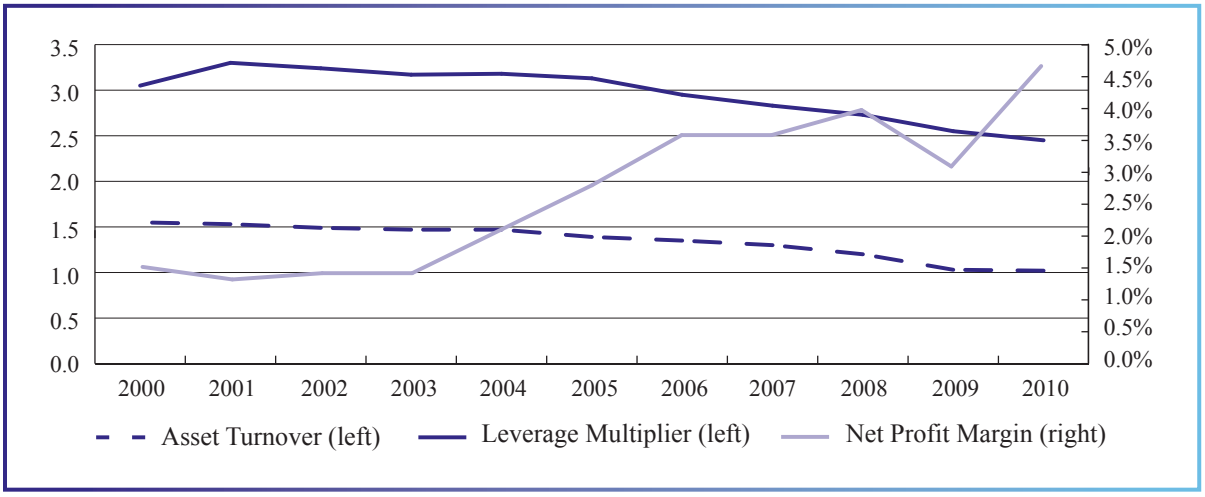

Source: Statistics Canada, *Financial Taxation Statistics for Enterprises*, 1999–2010, and author's calculations.

### 2. *What factors drove changes in sustainable growth rates for Canadian SMEs over the period?*

To understand changes in sustainable growth over the period, it is necessary to examine the factors that influenced it, in particular business ROE. Recalling that ROE can be decomposed into three component ratios, Figure 3

presents data showing the trends in net profit margins, asset turnover, and financial leverage between 2000 and 2010.

**Figure 3: Sustainable Growth Component Ratios—Net Profit Margins, Asset Turnover and Financial Leverage Multiplier, 2000–10**




Source: Statistics Canada, *Financial Taxation Statistics for Enterprise*, 1999–2010, and author's calculations.

Between 2000 and 2003 SMEs had fairly stable margins, asset turnover and financial leverage and, consequently, also had a fairly stable sustainable growth rate. After 2003, SMEs started to show a decline in asset turnover and financial leverage. The decline in financial leverage, which fell from 3.18 in 2004 to 2.45 in 2010, could be a result of management returning capital to investors and repaying lenders. The decline in asset turnover, which fell from 1.47 to 1.02 between 2004 and 2010, could be a result of an underutilization of facilities or equipment. While both of these effects dampened sustainable growth rates, the effects between 2004 and 2006 were offset by rising profit margins, which increased from 2.1 percent to 3.6 percent. More evidence of a positive correlation between sustainable growth and profit margins became visible in 2009 as both factors declined due to the financial crisis/recession and intensified competition. In 2010 profit margins rose to 4.7 percent and sustainable growth rates rose to 8.7 percent.

The relative influence of each component of ROE on sustainable growth can be identified by determining the sustainable growth rate's proportional exposure to each factor. This can be accomplished using

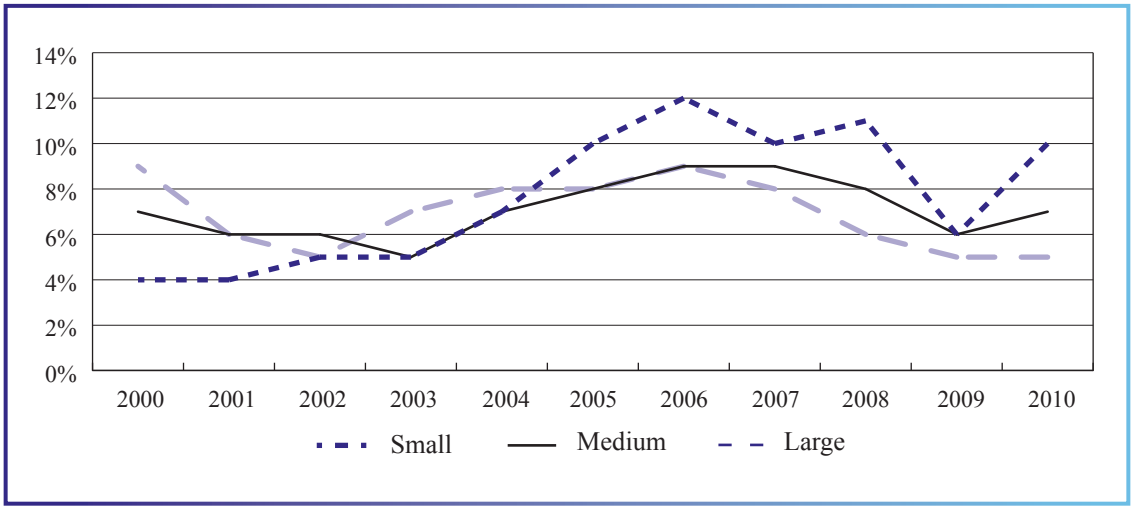
constrained ordinary least squares regression. The process involves regressing annual sustainable growth rates on each series of the component ratios in ROE. Retention rates, which averaged 74 percent over the period, were also factored into the model. The constraints imposed on the model include: (1) the constant is zero; (2) the coefficients or betas on the exogenous variables sum to 1; and (3) all coefficients are non-negative. These constraints make it possible to interpret the betas as the sustainable growth rate's proportional exposure to each factor. Results of this regression produced factor weights for the retention rate, asset turnover ratio, leverage multiplier and net profit margin of 1.7 percent, 0 percent, 1.7 percent and 96.6 percent respectively. This shows that changes in the sustainable growth rate for Canadian SMEs over the 2000–10 period were driven primarily by changes in net profit margins with only minor influence by retention rates and financial leverage.

### 3. *How much growth could small, medium- and large-sized businesses each have sustained between 2000 and 2010?*

Three firm-size categories were analysed to address this question: small, medium, and large. When grouped into these three categories, some interesting patterns were revealed (Figure 4). Sustainable growth rates for small businesses started the decade with the lowest rate, averaging 5 percent between 2000 and 2004 compared to 6 percent for medium-sized businesses and 7 percent for large-sized businesses. This reversed in the second half of the decade with sustainable growth rates for small businesses averaging 10 percent between 2005 and 2009 compared to 8 percent for medium-sized businesses and 7 percent for large-sized businesses.

Considering the full period, average sustainable growth rates were highest among small-businesses, though only slightly, averaging 7.6 percent compared to 7 percent for medium- and large-sized businesses. One factor that could have contributed to this difference is that small businesses maintained a higher retention rate than medium- and large-sized businesses over the period (averaging 82 percent, 63 percent, and 60 percent respectively). A test was conducted to discern whether the differences in sustainable growth rates were statistically significant.

**Figure 4: Sustainable Growth Rates by Size of Business, 2000–10**




Source: Statistics Canada, *Financial Taxation Statistics for Enterprises*, 1999–2010, and author's calculations.

A paired comparisons test (DeFusco et al., 2004) was used to test the differences between the means of the sustainable growth rates. Testing the null hypothesis that the differences in means are equal to 0 versus the alternative hypothesis that they are not equal to 0 produced the results shown in Table 1.

**Table 1: Significance Test of Differences Between Sustainable Growth Rates by Size of Business, 2000–10**

| Small vs. Medium | Small | Medium |
|---|---|---|
| **Mean** | 0.08 | 0.07 |
| **Variance** | 0.00 | 0.00 |
| **Observations** | 11.00 | 11.00 |
| **Correlation** | 0.85 | |
| **Hypothesized Mean Difference** | 0.00 | |
| **P-value** | 0.30 | |
| **Small vs. Large** | **Small** | **Large** |
| **Mean** | 0.08 | 0.07 |
| **Variance** | 0.00 | 0.00 |
| **Observations** | 11.00 | 11.00 |
| **Correlation** | 0.23 | |
| **Hypothesized Mean Difference** | 0.00 | |
| **P-value** | 0.44 | |
| **Medium vs. Large** | **Medium** | **Large** |
| **Mean** | 0.07 | 0.07 |
| **Variance** | 0.00 | 0.00 |
| **Observations** | 11.00 | 11.00 |
| **Correlation** | 0.52 | |
| **Hypothesized Mean Difference** | 0.00 | |
| **P-value** | 0.81 | |

Source: Statistics Canada, *Financial Taxation Statistics for Enterprises*, 1999–2010, and author's calculations.

The positive correlations in the output table confirm that the sustainable growth rates across size categories were related and, consequently, the paired comparisons test conducted was appropriate. Because the p-values of 0.30, 0.44, and 0.81 exceeded the 0.05 and even the 0.10 significance levels, it is not possible to reject the null hypothesis. There does not appear to be any statistically significant differences in sustainable growth rates across business size categories.

Returning to the original question, therefore, it appears that businesses of each size category—small, medium, large—could have financially supported an average growth rate in sales of approximately 7.0–7.6 percent over the period given their normal earnings power and without having to raise additional financing.

### 4. *In which sectors could SMEs have sustained the highest levels of growth?*

Sustainable growth rates will not be the same for all sectors; therefore, the data was grouped into eight categories and divided between goods producing and service producing sectors.

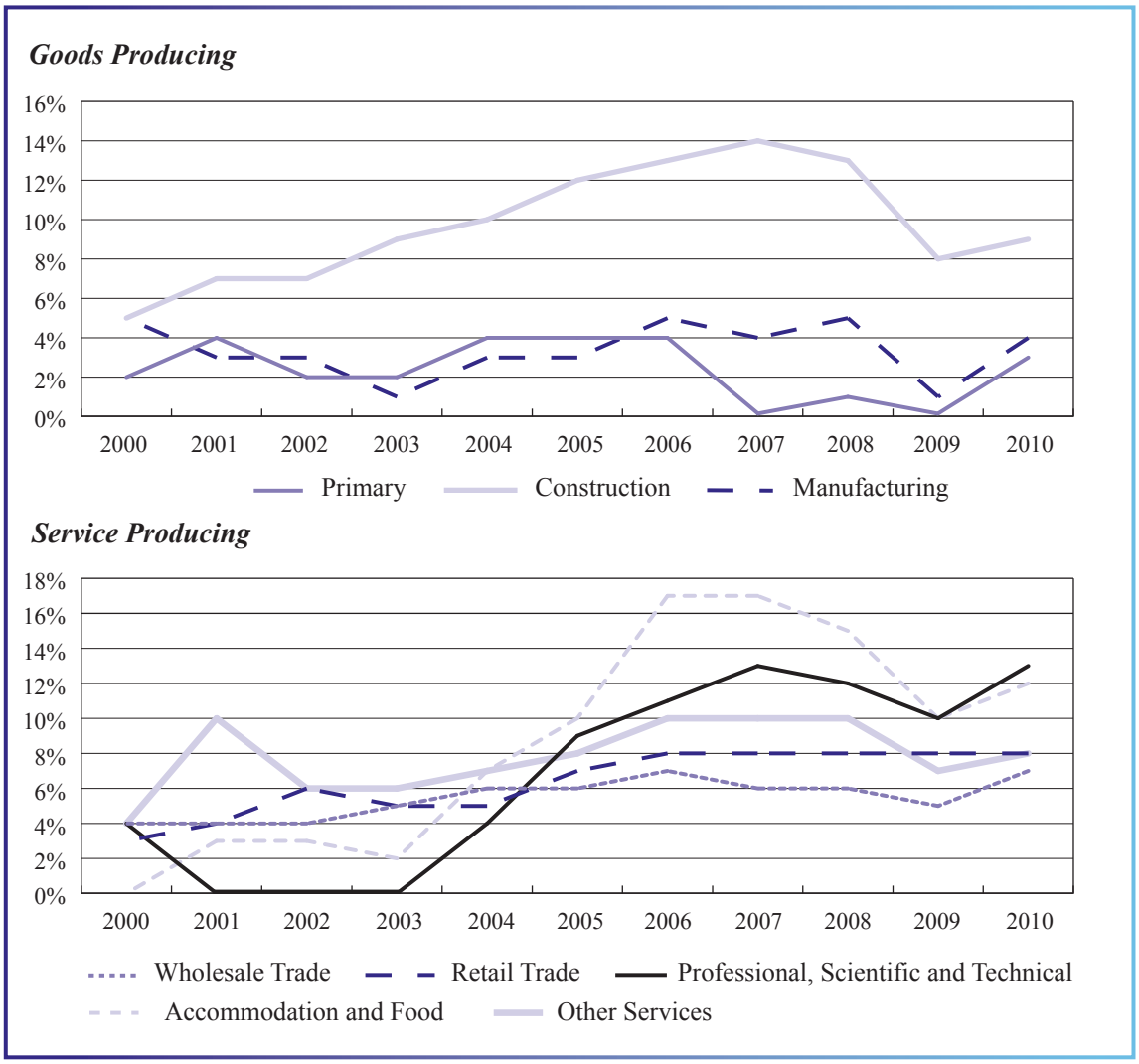
Figure 5 presents the trend in sustainable growth rates for SMEs by sector. Sustainable growth rates for most sectors followed the same basic pattern, rising between 2000 and 2007, falling between 2008 and 2009, and rising again in 2010. The rates of change differed by sector.

On average, businesses in the accommodation and food services sector saw the steepest increase in sustainable growth rates between 2000 and 2007, rising from less than 1 percent in 2000 to 17 percent in 2007. This can be largely explained by the rapid rise in earnings experienced over the period with ROE reaching 34 percent in 2007. Businesses in the construction sector and the professional, scientific and technical services sector also showed strong growth, rising from 5 percent to 14 percent and 4 percent to 13 percent respectively. The manufacturing sector showed a minor decline in its sustainable growth rate over the period, falling from 5 percent in 2000 to 1 percent in 2003 only to rise to 4 percent in 2007.

Considering the full period, SMEs in the construction sector could have sustained the highest level of growth in sales, producing an average sustainable growth rate of 10 percent over the period.

This was followed by SMEs in the accommodation and food services sector and the other services sector, each having produced an average sustainable growth rate of 9 percent and 8 percent respectively. Sustainable growth rates were on average lowest amongst the primary (2 percent) and manufacturing sectors (3 percent). SMEs in the wholesale trade, retail trade, and professional, scientific and technical services sectors displayed broadly similar sustainable growth rates averaging 5 percent, 6 percent and 7 percent respectively.

**Figure 5: Sustainable Growth Rates by Sector, 2000–10**




Source: Statistics Canada, *Financial Taxation Statistics for Enterprises*, 1999–2010, and author's calculations.

A test of significance was conducted to study the differences in sustainable growth rates across sectors. The p-values from the paired comparison tests are presented in Table 2.

The results support the hypothesis that the sector of the firm does affect the firm's sustainable growth rate. The differences in growth rates between sectors were found to be statistically significant. The analysis showed that the sustainable growth rates of service producing sectors were significantly higher than in the primary and manufacturing sectors but not in the construction sector.

In summary, data shows that SMEs in the construction sector were financially capable of supporting the highest levels of growth over the period.

**Table 2: Significance Test of Differences Between Sustainable Growth Rates by Sector (p-values), 2000–10**

| | Primary | Construction | Manufacturing | Wholesale Trade | Retail Trade | Professional, Scientific and Technical | Accommodation and Food | Other Services |
|---|---|---|---|---|---|---|---|---|
| **Primary** | | | | | | | | |
| **Construction** | 0.000* | | | | | | | |
| **Manufacturing** | 0.111 | 0.000* | | | | | | |
| **Wholesale Trade** | 0.000* | 0.000* | 0.002* | | | | | |
| **Retail Trade** | 0.001* | 0.000* | 0.001* | 0.017* | | | | |
| **Professional, Scientific and Technical** | 0.034* | 0.046* | 0.039* | 0.259 | 0.669 | | | |
| **Accommodation and Food** | 0.012* | 0.378 | 0.012* | 0.059 | 0.132 | 0.069 | | |
| **Other Services** | 0.000* | 0.026* | 0.000* | 0.000* | 0.014* | 0.505 | 0.505 | |

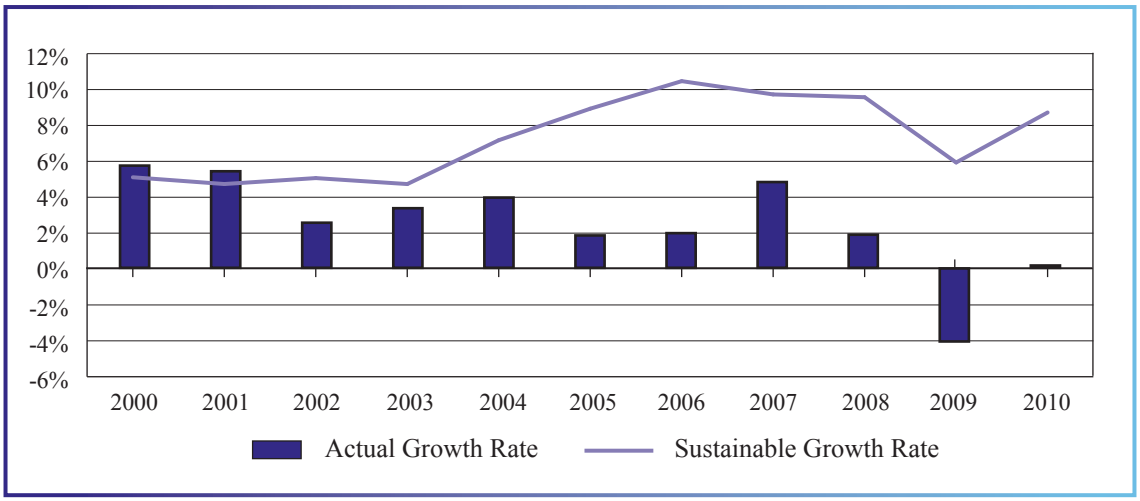
Source: Statistics Canada, *Financial Taxation Statistics for Enterprises*, 1999–2010, and author's calculations.
*Significant at the 5 percent level of significance.

## 5. *Did Canadian SMEs grow at, above, or below their sustainable growth rates?*

Perhaps the most interesting aspect of sustainable growth analysis involves an assessment of the differences between sustainable growth rates and actual business growth rates. Actual growth rates were determined by calculating the percentage change in revenues over each of the periods. The approximate 850 000 enterprises included in the study generated a total of $8.081billion in revenues between 2000 and 2010 and grew at an average rate of about 3 percent per year.

Figure 6 presents a comparison between actual growth rates and sustainable growth rates and two main points emerge. One, the relationship between actual growth and sustainable growth appears weakly correlated. Two, actual SME growth has trended below sustainable growth since 2002.

**Figure 6: Sustainable Growth vs. Actual Growth for Canada's SMEs, 2000–10**




Source: Statistics Canada, *Financial Taxation Statistics for Enterprises*, 1999–2010, and author's calculations.

The correlation between actual growth and sustainable growth was -0.16 between 2000 and 2010 and was not statistically significantly different from 0. Taking just the 2004–10 period, the correlation strengthens considerably to 0.59. However, with only seven observations, at a 10 percent significance level it is still not possible to reject the null hypothesis that the true correlation is equal to 0 (i.e., sustainable growth and actual growth are not correlated).

Actual growth rates differing from sustainable growth rates is not uncommon. Because business ROE and retention rates can show significant year-to-year fluctuations, it is possible to observe situations where actual growth rates stray from sustainable growth rates (Kyd, 1988). Nevertheless, when fluctuations of actual growth around sustainable growth average out over time, sustainable growth rates should provide a useful basis for approximating the average rate at which a firm could grow over the long term (Stowe et al., 2009).

In situations where actual growth rates deviate from sustainable growth rates for an extended period of time—with actual growth trending below sustainable growth for SMEs in Canada—there could be a conflict between business "growth intentions" and business "growth potential" (Moore, 1988). As part of the examination, a significance test of means was conducted to assess the possibility that the differences between actual and sustainable growth rates were not statistically different (i.e., SME growth would be at its break-even level). However, test results support the hypothesis that actual SME growth is significantly below sustainable SME growth at a 5 percent level of significance. So, while Canadian SMEs overall seem to have the financial infrastructure and earnings capacity in place to pursue a higher growth strategy, they choose not to do so, or are prevented from doing so.

The question of why actual SME growth rates have trended below sustainable SME growth rates is of particular interest since the difference raises concerns regarding the capabilities and motives of Canadian business owners. While this study was not intended to specifically answer why actual SME growth trended below sustainable SME growth, common growth obstacles faced by SMEs include:[3]

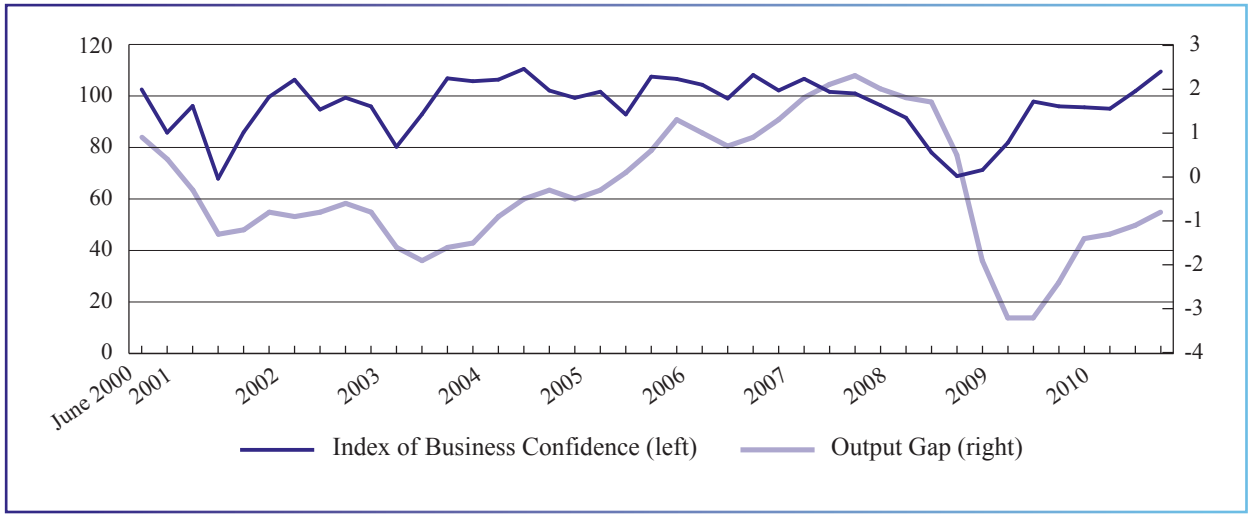
- Management lacked the knowledge and skills needed to exploit new growth opportunities;
- Management thought industry growth was reaching a state of maturity;
- Management conservatism or pessimism;
- Government impediments or regulations limited businesses' abilities to exploit growth opportunities;
- An inability to access international markets;
- Management was cushioning itself against a negative shock to demand;
- Business owners lacked the ambitions to grow; and
- Exploitable growth opportunities simply did not exist.

For example, looking at the 2009–10 period, the gap between sustainable growth rates and actual growth rates could be explained by the widening output gap and decline in business confidence

[3] King, Julie. "Overcoming Challenges that Prevent Small Business Growth." *Canada One*. (2007); New South Wales Government. *Six growth challenges for SMEs*. (2011); and Queen School of Business, Canadian Manufacturers and Exporters, and RBC. *Enabling Suatainable Success in Canadian SMEs*. (2003).

(Figure 7) resulting from the financial crisis and economic slowdown. That is, without their being sufficient domestic demand to accommodate achievable production levels, and feeling concerned about the state of the economy, it is not surprising that business owners would choose to retain capital in case business conditions worsened.

**Figure 7: Conference Board Business Confidence Index and Bank of Canada's Conventional Output Gap Measure, 2000–10**




Source: Conference Board of Canada, *Index of Business Confidence*, 2000–10; and Bank of Canada, *Indicators of Capacity and Inflation Pressures for Canada*, 2000–10.
Note: The output gap is the difference between the economy's actual output and the level of production it can achieve with existing labour, capital and technology without putting sustained upward pressure on inflation.

The gap between actual and sustainable growth rates observed between 2004 and 2008, a period of relatively stable economic growth and demand, might be explained by the risk averseness[4] of Canadian SMEs or the fact that only 40 percent of SMEs have growth ambitions.[5] If there is no ambition to grow then actual growth will likely never align with sustainable growth (Morningstar, 2010).

SME growth rates trending below sustainable growth rates could be an indication that the financial sector has done an excellent job of capitalizing Canadian businesses, or it could be an indication that financial resources have not been optimally utilized. In the data from Sempath's and Kambil's U.S. study,

[4] Deloitte. "The future of productivity: An eight step game plan for Canada." (2011).
[5] Statistics Canada. *Survey on Financing of Small and Medium Enterprises*. (2004 and 2007).

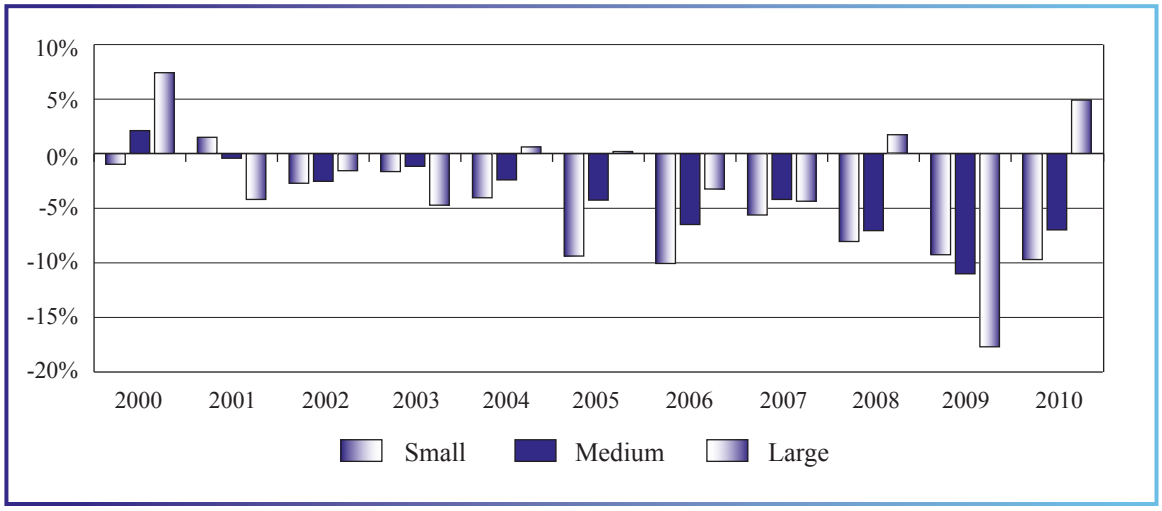
*Sustainable Growth: An Updated Analysis of Growth Potential Across U.S. Industries*, actual growth rates of businesses on the S&P 500 were found to lie below sustainable growth rates by about 3 percent. Sempath and Kambil explained that this type of situation is one of "excess liquidity." To remedy it, they believed that businesses should be more aggressive in the pursuit of new growth opportunities and could maintain solid financial positions while at the same time making investments in new equipment to support expansion into new or existing markets. Businesses could also develop new products and services; pursue increased mergers and/or acquisition activity; or increase research and development efforts to lead to the commercialization of new, higher growth, lines of business. However, if growth opportunities do not exist it would be more prudent for management to return capital to investors/lenders through share repurchases, dividends, and loan repayments (Sempath and Kambil, 2005). This would represent a more efficient use of resources and would lower their sustainable growth rates. Sustainable and actual growth rates would then converge.

### 6. *Did small, medium- and large-sized business each grow at, above, or below their sustainable growth rates?*

An analysis of actual versus sustainable growth rates was also performed for small, medium- and large-sized businesses. The analysis focused on trying to determine whether the observed differences were statistically significant. Figure 8 shows the spread between actual and sustainable growth rates between 2000 and 2010. A spread of zero would indicate that firms grew at their break-even growth rates.

Actual growth rates were below sustainable growth rates in almost every year for all size categories. The spread averaged about -5 percent for small businesses, -4 percent for medium-sized businesses and -2 percent for large businesses (-5 percent, -3 percent and 0 percent if the 2009 recession year is excluded). The tighter spread among large businesses overall could suggest a superior ability to exploit growth opportunities when available or a more sophisticated ability to manage financial resources.

**Figure 8: Spread (Actual Growth—Sustainable Growth) by Size of Business, 2000–10**




Source: Statistics Canada, *Financial Taxation Statistics for Enterprises*, 1999–2010, and author's calculations.

Table 3 indicates the statistical significance of the differences in means between actual and sustainable growth rates for each size category. Actual and sustainable growth rates were significantly different for small and medium-sized businesses. The opposite was true for large-sized businesses, a result which is consistent with expectations from Figure 8 (outside of the recession year).

From this, two conclusions can be put forward. One, small and medium-sized businesses appear to have been financially capable of supporting higher levels of growth than what was actually achieved. Two, large-sized Canadian businesses appear to have grown at or near their sustainable growth rate.

**Table 3: Spread (Actual Growth—Sustainable Growth) by Size of Business, 2000–10**

| | Small | | Medium | | Large | |
|---|---|---|---|---|---|---|
| **Mean** | 0.08 | 0.02 | 0.07 | 0.03 | 0.07 | 0.05 |
| **Variance** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| **Observations** | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 |
| **Hypothesized Mean Difference** | 0.00 | | 0.00 | | 0.00 | |
| **P-value** | 0.00 | | 0.00 | | 0.35 | |

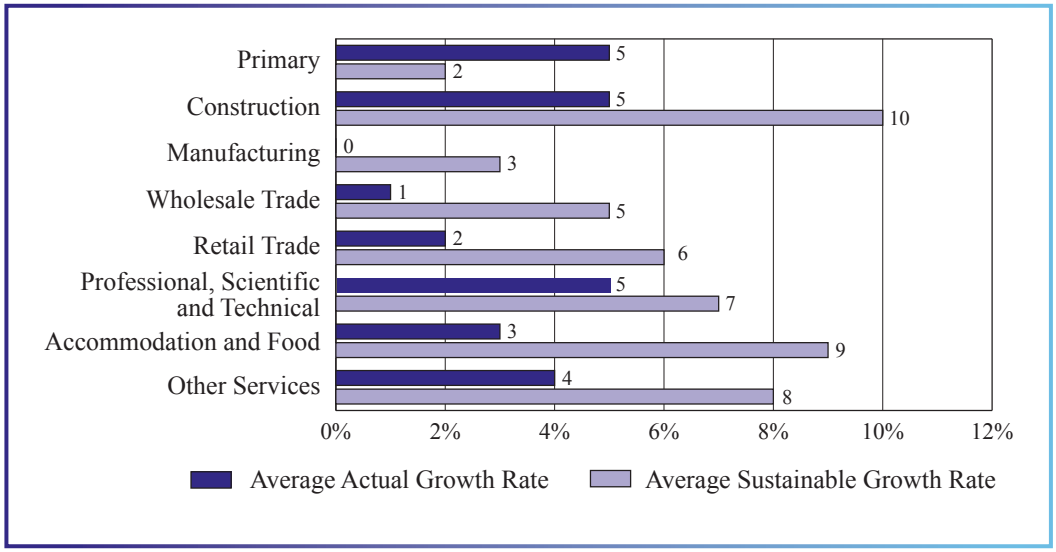
Source: Statistics Canada, *Financial Taxation Statistics for Enterprises*, 1999–2010, and author's calculations.

## 7. *Did SMEs within all sectors grow at, above, or below their sustainable growth rates?*

This study also identified differences in actual and sustainable growth rates for SMEs by sector. The data in Figure 9 shows that for most sectors there was a misalignment between actual growth rates and sustainable growth rates between 2000 and 2010.

In all sectors other than the primary sector, actual growth fell below sustainable growth. The difference was largest for businesses in the wholesale trade sector and the accommodation and food service sector (-5 percent) and smallest for businesses in the professional scientific and technical services sector (-2). The average growth rate for businesses in the manufacturing sector was slightly negative over the period, falling below its sustainable growth rate of 3 percent. For entrepreneurs in the primary sector, actual growth rates were on average higher than sustainable growth rates, suggesting that firms in this sector were growing faster than available financial resources could sustain. That is, they were growing at a rate that would have required the acquisition of assets, in the form of inventories, receivables, and plant and equipment, that could not have been supported by the normal earnings power of the companies.

**Figure 9: SME Average Growth and Average Sustainable Growth Rates by Sector, 2000–10**




Source: Statistics Canada, *Financial Taxation Statistics for Enterprises*, 1999–2010, and author's calculations.

An analysis of the statistical significance between means of actual and sustainable growth rates was conducted. Testing the null hypothesis that the differences were equal to 0 versus the alternative that they were not equal to 0, results show that SMEs in the primary sector and the professional, scientific and technical services sector grew at their sustainable growth rates. The p-values of the test of significance are displayed in Table 4. It can be seen that the null hypothesis could not be rejected for such sectors. Alternatively, the null could be rejected at the 5 percent significance level for the construction, manufacturing, wholesale trade, retail trade, accommodation and food services, and other services sectors.

**Table 4: Significance Test of Difference Between Means of Actual and Means of Sustainable Growth Rates by Sector (p-values), 2000–10**

| Industry | P-value |
|---|---|
| Primary | 0.095 |
| Construction | 0.010 |
| Manufacturing | 0.002 |
| Wholesale Trade | 0.000 |
| Retail Trade | 0.009 |
| Professional, Scientific and Technical Services | 0.428 |
| Accommodation and Food Services | 0.035 |
| Other Services | 0.001 |

Source: Statistics Canada, *Financial Taxation Statistics for Enterprises*, 1999–2010, and author's calculations.

This corroborates findings from the previous section. That is, many Canadian SMEs in a variety of sectors had the financial capacity to support higher levels of growth than what was achieved.

## VI. Some Caveats of the Higgins Sustainable Growth Model

Financial models such as the Higgins Sustainable Growth Model are based on assumptions. One criticism of the HSGM is that it is too simplistic and that, in reality, the assumptions are unrealistic for the interpretation of a single point of data. Costs do not always trend proportionally to sales, asset growth does not always correspond with sales growth, and capital structures and dividend and reinvestment policies all tend to fluctuate over time. That being said, estimates based on a long-term trend, as measured by an average sustainable growth rate over a 7 to 12 year period, as done here, are more realistic as they account for and smooth out and natural volatility in model inputs. Also, this study took a backward look at sustainable growth rates based on observed variables. For forecasting, sustainable growth estimates could be refined by incorporating long-run expectations of steady-state values of margins, retention rates, asset turnover and financial leverage.

A second criticism of the HSGM is that it does not reveal why sustainable growth rates differ from actual growth rates. For example, the model does not indicate whether actual growth rates for Canadian SMEs fell below sustainable growth rates because business owners did not want to grow, failed to identify or exploit growth opportunities or because they did not have any opportunities to grow.

Third, the HSGM is criticized in the context of high-growth firms, which are often unprofitable in the short-term, and thus have sustainable growth rates that are negative. Negative sustainable growth rates have little meaning because businesses must operate profitably in order to have internal resources to support growth. Compared to profitable businesses, which can support at least a minimum level of growth using internally generated funds, the growth strategies of unprofitable high-growth firms, or high-growth firms with low sustainable growth rates, are dependent on the willingness of lenders and investors to fund their operations. It is important to note that lenders and investors are sometimes willing to fund their operations for long periods of time in anticipation that one day improved profitability will not only reduce the need for additional financing (and bring their sustainable grow rates in line with actual growth rates) but provide them with significant returns on their investment.

In sum, even with its limitations, the HSGM is helpful for assessing the financial infrastructure of Canadian businesses and understanding their ability to financially support growth over the long-term. This analysis showed that SMEs generated sufficient profitability to support growth at about a 7.3 percent annual rate. They actually grew at about a 3 percent rate, suggesting that access to capital at the aggregate level was not a barrier to growth. This information is useful for government policy makers. However, in interpreting these findings, it is important to note that other studies have been conducted confirming that at the firm level, there are still certain sub-categories of businesses that face difficulties accessing growth financing, namely young and R&D intensive businesses (Industry Canada, 2010).

## VII. Conclusion

This study addressed the question: how much growth could Canadian SMEs financially support? The HSGM was introduced to measure the maximum rate of growth in sales a firm could potentially support internally, and sustain over the long-term, given its financial resources, financial policies and normal earnings power without the need to raise additional financing. Findings from the study showed that:

1. As a whole, Canadian SMEs could have sustained an average rate of growth in sales of approximately 7.3 percent over the 2000–10 period;
2. Changes in sustainable growth rates for Canadian SMEs over the 2000–10 period were driven primarily by changes in net profit margins with some minor influence by retention rates and financial leverage;
3. There were no statistically significant differences in sustainable growth rates among small, medium- and large-sized businesses, with all businesses capable of sustaining an average rate of growth in sales of between 7 percent and 7.6 percent;
4. Sustainable growth rates for SMEs in each sector trended in the same basic pattern over the period, rising between 2000 and 2007, falling between 2008 and 2009 and then rebounding in 2010. SMEs in the construction sector had the highest average sustainable growth rate over the period (10 percent);

5. Actual SME growth rates, which averaged 3 percent over the period, were statistically significantly lower than sustainable SME growth rates, which averaged 7.3 percent over the period. This gap suggests SMEs had unrealized growth potential;
6. Actual SME growth rates were statistically significantly lower than sustainable growth rates for small and medium-sized businesses (the spread averaging -5 percent for small businesses and -4 percent for medium-sized businesses), but not for large businesses (the spread averaging -2 percent). The analysis suggests that large-sized businesses are more likely to grow at their sustainable growth rate. Again, small and medium-sized businesses had unrealized growth potential; and
7. While SMEs in the primary sector and the professional, scientific and technical services sector grew at their sustainable growth rates, for all other sectors actual growth fell significantly below sustainable growth.

These findings raise further questions regarding the capabilities and motives of Canadian business owners. While SMEs as a whole seemed to have the financial infrastructure and earnings capacity in place to support higher levels of growth, why did they chose not to grow or were they unable to grow? Unfortunately, the HSGM does not provide answers to this question.

In conclusion, the data presented here generated using the HSGM provides a new approach for measuring and assessing Canadian SMEs' growth performance. It is encouraging to observe that, in aggregate, as Canadian SMEs emerged from the recent recession, they had strong internal resources to support new growth opportunities. While certain businesses or sub-categories of businesses continue to face tight credit conditions, the analysis shows that the key challenge is for SMEs to identify and capitalize on growth opportunities.

## VIII. Definitions of Terms

*Actual growth*: Measured as the percentage change in business revenues over a given period of time.

*Assets*: Resources owned/controlled by an enterprise (i.e., inventories, land, property, plants and equipments, etc.) as a result of past events and from which future economic benefits, typically measured in the form of cash flows, are expected to arise.

*Asset turnover*: The amount of sales generated for every dollar's worth of assets. Calculated by dividing total sales by total assets. Asset turnover helps measure the efficiency with which firm assets are being used. Typically, the higher the ratio the better.

*Debt*: An amount owed to a lender or supplier for funds borrowed and/or products/services delivered. Debt can be represented by a loan, bond, mortgage or other instrument stating repayment terms and, if applicable, interest requirements.

*Dividend payout ratio*: The percentage of company earnings paid out to shareholders.

*Equity*: A stock or other security representing ownership interest in a company. On a company's balance sheet it represents the amount of funds contributed by the owners plus the sum of whatever earnings they retained within the business.

*Financial leverage multiplier*: A measure of financial leverage. Calculated by dividing total assets by total equity. The financial leverage multiplier is a way of examining how a company uses its debt to finance its assets. A higher multiplier indicates higher financial leverage and greater financial risk.

*Net Income*: A company's total profits. It is calculated by subtracting from total revenues over a period, the costs of sales along with all other expenses that the company incurred.

*Net profit margin*: A ratio of profitability calculated by dividing net income by total revenues. It measures how much out of every dollar of sales a company actually keeps in earnings.

*Retention Rate*: The percentage of annual earnings retained within the business. Measured as 1 minus the dividend payout ratio.

*Return on equity*: A measure of income earned on equity owners' investment. Calculated by dividing net income after taxes by owners' equity.

*Sustainable growth*: A measure of the rate of growth in sales, earnings and cash flows that a company can potentially generate, and sustain, over time given its level of income, keeping its capital structure constant and without issuing additional equity.

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