

**Securities Enforcement in Canada:  
The Effect of Multiple Regulators**

Research Study Prepared for the  
Wise Persons' Committee

Charles River Associates

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## **Securities Enforcement in Canada: The Effect of Multiple Regulators**

### **Biographies**

#### **Charles River Associates**

Charles River Associates (CRA) is a leading provider of economic, financial and business strategy consulting, with offices throughout the world.

#### **Margaret Sanderson**

Margaret Sanderson is Vice President and head of CRA's Toronto office. Ms. Sanderson has experience analyzing the economic effects of a wide range of business conduct and government regulatory policy across a diverse set of industries. In the finance sector, Ms. Sanderson has led CRA projects that involved: estimating the costs that are attributable to the multiplicity of Canada's securities regulators; assessing whether Canadian rules and regulations contribute to higher retail trading costs in Canada; and measuring the potential effects on Canadian equities markets of a non-synchronous change in settlement period between Canada and the U.S. Prior to joining CRA, Ms. Sanderson was responsible for managing the Competition Bureau's resources dedicated to providing economic expertise on competition cases, regulatory interventions and policy. In this capacity she was responsible for the *Merger Enforcement Guidelines as Applied to a Bank Merger*. Ms. Sanderson holds an M.A. in Economics from the University of Toronto.

#### **Mark Neumann**

Mark Neumann is an Associate Principal within CRA's Toronto office. Dr. Neumann has expertise in financial economics, industrial organization and econometrics. Since joining CRA, Dr. Neumann has been the principal economist on all of CRA's Canadian finance projects, including work undertaken for the Canadian Capital Markets Association, Investment Dealers Association, Ontario Securities Commission and private securities clients. In addition to his finance-related expertise, Dr. Neumann has considerable experience in economic modeling, econometric and simulation analysis, and competition analysis. As well, he has analyzed the initial stock price performance of firms undertaking initial public offerings of equity, the costs associated with raising debt and equity finance, and the effect of investments abroad on firm performance. While previously working as an economist at the Department of Finance, he undertook research of Canadian demographics and the housing market. Dr. Neumann holds a Ph.D. in Economics from the University of British Columbia.



## **Securities Enforcement in Canada: The Effect of Multiple Regulators**

### **Executive Summary**

Enforcement of securities laws is extremely important. Simply having a law on the books is insufficient to ensuring effectively functioning capital markets. Academic research shows that a country experiences a substantial decrease in the cost of equity the first time that there is evidence that existing insider trading laws are enforced.<sup>1</sup> Such a decrease in the cost of equity is not found when insider trading laws are initially enacted. Thus, an effective enforcement regime will enhance market value.

Securities enforcement is a highly complex regulatory activity, a testament to the extent of and the complexity of securities laws, rules and regulations. While for many individuals, enforcement brings to mind high-profile cases such as those involving YBM Magnex International Inc, Bre-X Minerals Ltd. or Livent Inc., regulators must routinely deal with many smaller cases. Inquiries and investigations may be launched into a wide range of activity, from trading without registration or engaging in abusive sales practices to fraudulent financial statements or insider trading. Violation of securities laws may affect a few individuals within a small community or it may affect thousands of investors dispersed across continents.

Quite apart from the general complexity of securities enforcement, Canada's system of regulation operates through 13 provincial and territorial securities regulatory authorities and three self-regulatory organizations (SROs). Of the SROs, two bodies are particularly active in enforcement matters, the Investment Dealers Association (IDA) and Market Regulation Services Inc. (RS).

Each securities regulator and SRO enforces its respective act, rules or regulations by allocating resources and adopting the enforcement practices that it finds best suited for fulfilling its particular mandate. While all regulators wish to ensure investor protection and foster strong capital markets, this may be accomplished through varying emphasis on enforcement relative to other regulatory activities. Budgets need to be allocated between policy-making, compliance and enforcement. Within enforcement, functions (and hence budgets) are further divided between surveillance, case investigation, and litigation. Finally, regulators determine what resources to dedicate to specific cases or types of cases.

The resources dedicated by a regulator to any particular investigation in turn affect the time and cost that private parties incur to cooperate with (or defend themselves against) the regulator. Should multiple regulators investigate the same or similar conduct, or require variations in the resolution of any particular enquiry, private parties' costs increase.

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<sup>1</sup> Utpal Bhattacharya and Hazem Daouk, "The World Price of Insider Trading" (2002) 57 Journal of Finance 75.

In light of the complexity of securities regulation, the multiplicity of regulators in Canada can impact several dimensions of enforcement activity. In this study, we undertake the following:

- We compare and contrast enforcement activity levels and budget resources across the commissions, the IDA and RS, as well as with certain U.S. securities regulators;
- We test the extent to which differences in socio-economic factors explain the observed differences between commissions in respect of enforcement, using certain U.S. state securities regulators as a comparison group;
- We examine the extent to which the current system leads to regulatory overlap and jurisdictional limitations, such that there is sub-optimal enforcement – either too much or too little – compared to a single regulator; and
- We estimate the lost economies of scale in enforcement budgets due to the multiplicity of regulators compared to having a single regulator with regional branch offices.

To address the above issues, we collected data from each of the commissions as well as the IDA and RS. Data was also solicited from the U.S. Securities and Exchange Commission (SEC) and various U.S. state commissions. We interviewed enforcement officials in several commissions to gather additional non-quantitative information. As well, we interviewed securities litigators for their views of the current regulatory environment, and the impact it has on their clients.

Our efforts to gather data for this study exemplify one of the issues generated by multiple regulators and the frustrations facing many market participants. While we requested the same information from each commission, the data we obtained varies considerably across commissions and SROs in its detail and completeness.

From the information we assembled and our subsequent analysis, we have drawn the following summary conclusions:

1. There are substantial differences between commissions in respect of their enforcement activities:
  - In respect of inputs, enforcement staff and budgets differ across commissions, whether compared on a per capita basis or relative to gross domestic product (GDP). Enforcement budgets are generally larger for bigger provinces. There is no discernable relationship between jurisdiction size and the percentage of commissions' total budget allocated to enforcement.

- Compared to the U.S. jurisdictions, Canadian commissions devote a smaller percentage of their total budget to enforcement. As well, enforcement budgets for the largest Canadian commissions – Alberta, British Columbia, Ontario and Quebec – are lower, on average, than for U.S. securities regulators of comparable size whether the comparison is made on a per capita basis or relative to GDP.
  - For any given number of staff devoted to enforcement, the proportion of staff allocated to case assessment, investigation and surveillance, and litigation is similar across the commissions for which we have this more detailed data (Alberta and Ontario).
  - When comparing enforcement outputs – either investigations per capita, relative to GDP or per \$100,000 enforcement budget – there is a strong positive relationship between the number of investigations and population for the smaller commissions, but not for the larger commissions. This likely results from the use of screening systems by the larger commissions to prioritize enforcement cases.
  - For those commissions for which we have detailed data on the type of investigations launched (Ontario and Manitoba) the top ranked types of investigations (ranked by percent of all investigations) differ across commissions. While investigations of sale of unregistered securities represent the largest percentage of investigations for Manitoba, it is ranked seven of ten categories for Ontario. The largest number of investigations for Ontario relate to abusive trade practices, which ranks fourth of ten in Manitoba.
  - Differences across jurisdictions in respect of the frequency with which criminal cases are pursued may reflect differences in the laws, frequency of financial crime, detection rates, and propensity to pursue criminal as opposed to other types of proceedings. A similar problem of making “apples to oranges” comparisons arises when comparing relief across jurisdictions. Bearing these caveats in mind, total penalties are higher in the U.S. compared to Canada. This is almost entirely due to large restitution payments that are available in the U.S. Administrative penalties and fines alone are comparable, on average, between Canada and the U.S.
2. The extent to which enforcement *requirements* differ regionally is a separate issue from whether effective enforcement *activity* needs to be implemented locally. The two issues are frequently conflated. There is general acceptance that implementing an effective enforcement regime requires a local presence. This still leaves open the extent to which enforcement priorities should differ between regions, such that different rules and regulations are required.
  3. Differences in various socio-economic factors (such as per capita disposable income, income distribution of investors, particularly those over age 65, and distribution of firms by size) between provinces explain only some of the difference in per capita investigations between commissions. The link between differences in socio-economic factors and enforcement activity is stronger in the U.S. than in Canada. In light of this,

any securities enforcement regime in Canada needs to be responsive to relevant local conditions. Responsiveness to local conditions for enforcement need not mean that there is no benefit to be derived from adopting a more centralized or harmonized regulatory structure.

4. While in the past, it was not uncommon to have parallel investigations by several commissions into the same or similar conduct this is no longer the case today. The commissions have vastly increased the level of enforcement cooperation and coordination between themselves and with the SROs. While this has meant many of the considerable problems of the past no longer occur today, it has not resolved all issues.
  - The number of cases pursued concurrently by more than one regulator is small as a percentage of total cases (estimated to be less than 5%) although these cases are typically the highest-profile cases.
  - From the regulators' perspective, their efforts to coordinate amongst themselves, appoint a lead regulator or pursue a joint investigation, minimizes any potential jurisdictional conflict or unnecessary duplication.
  - Nonetheless, it is the general view of many securities litigators that Canada's multiplicity of regulators continues to add unnecessary cost to the enforcement process.
    - Parties under investigation do not always have assurance that a settlement reached with one regulator will be sufficient for all, yet they may be limited initially to dealing only with the lead regulator.
    - Joint hearings necessarily entail various coordination costs that would be avoided with a single regulator.
    - Compartmentalization of investigations into components that allow several regulators to play a role is neither efficient nor timely.
  - Whatever the extent of coordination and cooperation, the very structure of the current regulatory regime in Canada today is likely to result in sub-optimal enforcement relative to any regulator that operates from the view of maximizing national interests. There is no mandate for any commission to act in the national interest. Each rightfully operates in its own provincial interest. While some might subsume such interests or take into account the possible effects of their actions outside of their own jurisdiction there is no reason to believe that this will happen as consistently or effectively as would exist with a national regulator.
5. There are moderate economies of scale in enforcement, such that certain savings could be achieved if the fixed costs of having an enforcement branch were incurred once rather than multiple times.
  - The extent of savings from avoiding duplication of fixed costs in respect of enforcement is considerably less than the potential savings available from

consolidating other securities regulatory activities. The lower economies of scale in respect of enforcement compared to policy-making and administrative functions reflect the localized nature of securities enforcement.

- Assuming the new regulatory structure has one head office in Ontario and five branch offices in British Columbia, Alberta, Manitoba, Quebec and Nova Scotia, the economies of scale savings in enforcement are estimated to be \$1.8 million annually, which is 8% of the amount that is currently spent by the 13 commissions on enforcement. The savings available from consolidating non-enforcement regulatory activities along the lines of this regulatory structure are estimated to be \$44.8 million, or 42% of the amount currently spent by the 13 commissions on non-enforcement activity.
- Our estimated total annual savings in improved economies of scale from moving to the regulatory structure noted above are robust to various sensitivity tests, ranging from an average lower bound of \$16 million to an average upper bound of \$57 million.

## **Policy Recommendations**

While the commissions have made great efforts to reduce duplication and overlap between themselves and with SROs in enforcement, their principal solutions – joint investigations and appointment of a lead regulator – have not eliminated all costs inherent in a system of multiple regulators. In light of our analysis, we offer the following policy recommendations:

- Of the models being considered to resolve the identified problems due to the multiplicity of regulators, a national regulator with multiple branch offices would be more economical for regulators, intermediaries and issuers compared to the current system while also incorporating regional interests and allowing for local enforcement.
- Any new regulatory structure should recognize that enforcement has a strong local component, both in terms of implementation and allocation of resources.
- As the potential savings from economies of scale of moving to a single regulator are smaller for enforcement than for other regulatory activities, a model that is able to retain the efficiency benefits from centralizing other regulatory activities should allow for relatively decentralized enforcement to the extent possible.
- While the economies of scale savings in enforcement are modest, the estimated savings in non-enforcement budgets of moving to a model with a national regulator and multiple branch offices dwarf total current enforcement budgets. As a result, these non-enforcement savings should factor prominently in considering reform options.
- Moreover, any move to increased centralization of regulators will also eliminate or greatly reduce the current differences between commissions in enforcement activity that are unexplained by differences in socio-economic conditions.



## **Securities Enforcement in Canada: The Effect of Multiple Regulators**

### **1. Enforcement Activity Levels**

We obtained data from each of the 13 Canadian securities commissions, the IDA and RS. As well, we obtained data from the SEC and a cross-section of U.S. state regulators (Alaska, Colorado, Connecticut, Idaho, Missouri, Kansas, Ohio, Oregon, Pennsylvania, Texas and Wyoming).

There are differences between commissions in respect of the data that they maintain and the period over which such data is available. Table 1 describes the data received from each Canadian commission, the IDA and RS. Table 2 describes the data received from the SEC and the various U.S. state regulators.

**Table 1: Description of Canadian Data**

<b>Regulator</b>	<b>Data Provided</b>
Alberta Securities Commission	<ul style="list-style-type: none"> <li>• Enforcement budget, 2000-2002.</li> <li>• Investigations, hearings, provincial court cases, and penalties 2000-2002.</li> </ul>
British Columbia Securities Commission	<ul style="list-style-type: none"> <li>• Enforcement budget, 1997-2002.</li> <li>• Investigations, settlements, hearings, penalties, and criminal cases 1996-2002.</li> </ul>
Manitoba Securities Commission	<ul style="list-style-type: none"> <li>• Enforcement employees and budget 2002-2003.</li> <li>• Investigations and penalties 1999-2002.</li> <li>• Breakdown of investigations by type.</li> </ul>
New Brunswick Securities Administration Branch	<ul style="list-style-type: none"> <li>• Investigations data 2000-2001.</li> </ul>
Securities Commission of Newfoundland & Labrador	<ul style="list-style-type: none"> <li>• Enforcement budget for 2002.</li> <li>• Investigations 2001-2002.</li> </ul>
Northwest Territories Securities Registry	<ul style="list-style-type: none"> <li>• Number of enforcement employees 2002.</li> <li>• Number of registrants 1995-2002.</li> </ul>
Nova Scotia Securities Commission	<ul style="list-style-type: none"> <li>• Enforcement budget 2002.</li> <li>• Investigations and penalties 2002.</li> </ul>
Nunavut Securities Registry	<ul style="list-style-type: none"> <li>• Enforcement budget 2002.</li> <li>• Investigations, firms registered in Nunavut 2002.</li> </ul>
Ontario Securities Commission	<ul style="list-style-type: none"> <li>• Enforcement budget 2000-2002.</li> <li>• Investigation, quasi-criminal cases, and monetary penalties 1997-2002.</li> <li>• Breakdown of investigations by type 1998-2002.</li> </ul>
Prince Edward Island Securities Registry	<ul style="list-style-type: none"> <li>• Enforcement employees 2002.</li> <li>• Investigations, prosecutions, and settlements 1998-2002.</li> </ul>
Commission des valeurs mobilières du Québec	<ul style="list-style-type: none"> <li>• Enforcement budget 1998-2002.</li> <li>• Investigations 1993- 2002.</li> <li>• Hearings, and penalties 1998-2002.</li> </ul>
Saskatchewan Securities Commission	<ul style="list-style-type: none"> <li>• Enforcement budget 2002.</li> <li>• Investigations, penalties, and prosecutions 1992-2002.</li> </ul>
Yukon Securities Registry	<ul style="list-style-type: none"> <li>• Information on the handling of investigations 2002.</li> <li>• Number of salespersons and brokers registered 2002.</li> </ul>
Investment Dealers Association	<ul style="list-style-type: none"> <li>• Number of employees devoted to enforcement 2000-2002.</li> <li>• Number of complaints, investigations, and prosecutions from 2000-2002.</li> </ul>
Market Regulation Services	<ul style="list-style-type: none"> <li>• Information provided on budget and employees 1998-2002.</li> <li>• Data on investigations from Toronto and Vancouver office from 1998-2002.</li> <li>• Data on joint investigations from 1998-2002.</li> </ul>

**Table 2: Description of U.S. Data**

<b>Regulator</b>	<b>Data Provided</b>
Alaska Division of Securities	<ul style="list-style-type: none"> <li>• Data on enforcement budget and employees 2002.</li> <li>• Annual number of investigations 2002.</li> </ul>
Colorado Division of Securities	<ul style="list-style-type: none"> <li>• Data on enforcement budget and employees 2000-2002.</li> <li>• Annual number of investigations 2000-2002.</li> </ul>
Connecticut Division of Securities	<ul style="list-style-type: none"> <li>• Number of employees devoted to enforcement 2002.</li> <li>• Number of investigations and actions 1999-2002.</li> </ul>
Idaho Securities Bureau	<ul style="list-style-type: none"> <li>• Number of employees devoted to enforcement 1999-2002.</li> <li>• Number of actions and monetary penalties from 1999-2002.</li> </ul>
Kansas Office of the Securities Commissioner	<ul style="list-style-type: none"> <li>• Data on budget devoted to enforcement 1999-2002.</li> <li>• Number of investigations and fines imposed 1999-2002.</li> </ul>
Missouri Securities Division	<ul style="list-style-type: none"> <li>• Number of employees devoted to enforcement 2002.</li> <li>• Number of investigations and criminal cases from 2000-2002.</li> </ul>
Ohio Division of Securities	<ul style="list-style-type: none"> <li>• Number of enforcement employees 1999-2002.</li> <li>• Data was given for the number of investigations, complaints, criminal cases from 2000-2002.</li> </ul>
Oregon Division of Finance and Corporate Securities	<ul style="list-style-type: none"> <li>• Number of employees devoted to enforcement 2002.</li> <li>• Number of complaints, and investigations from 2000-2002.</li> </ul>
Pennsylvania Securities Commission	<ul style="list-style-type: none"> <li>• Number of employees devoted to enforcement 2002.</li> <li>• Number of complaints, investigations, and enforcement actions 1998-2002.</li> </ul>
Texas State Securities Board	<ul style="list-style-type: none"> <li>• Number of enforcement employees and the enforcement budget 1999-2002.</li> <li>• Number of investigations and monetary penalties 1999-2002.</li> </ul>
Wyoming Securities Division	<ul style="list-style-type: none"> <li>• Enforcement budget and the number of employees devoted to enforcement 2002.</li> <li>• Number of investigations and monetary penalties from 1998-2002.</li> </ul>
Securities and Exchange Commission	<ul style="list-style-type: none"> <li>• Number of investigations 1999-2002.</li> <li>• Number of employees devoted to enforcement 2001.</li> </ul>

As is evident from Tables 1 and 2, we are unable to make complete comparisons across commissions and SROs in respect of their enforcement activity due to a lack of comparable data. In addition, there may be varying definitions used for some of the variables across commissions. For the most part we focus on the more aggregate data, such as the number of investigations and the number of enforcement staff, where definitional issues are less pronounced. Where we have more detailed information from certain commissions and SROs, we report these recognizing that such comparisons are inherently more anecdotal. In this vein, we provide information on the number of complaints, the number of settlements and the size of monetary penalties imposed where this is available. We also provide any information we have on the type of investigations undertaken, including the extent to which criminal actions are pursued. Finally, some commissions provided data on the number of case referrals and information on concurrent investigations with other jurisdictions.

Quite apart from the difficulties comparing jurisdictions, there are also instances where comparisons over time for any single jurisdiction are complicated by changes in reporting methods. For example, the British Columbia Securities Commission (BCSC) adopted a risk-based enforcement system during the period over which we have data. This change resulted in a considerable reduction in the number of cases that were transferred into their case assessment unit after 2000. The result is that the number of reported investigations drops dramatically in fiscal year 2000-2001. Quebec also had changes over the period. In February 2003, legal specialists, employees of the Registration Department and some employees of the SRO Department were moved to another division of the Commission des valeurs mobilières du Québec (CVMQ), and as a result the number of employees noted for enforcement activity for the CVMQ in 2002-2003 is not directly comparable to the number in earlier years.

Generally, more comprehensive data was provided by the SROs, in particular RS. RS provided detailed data on their surveillance, investigation and enforcement statistics by office (Toronto and Vancouver) as well as details of joint investigations conducted with commissions and other SROs. The IDA provided information on the number of employees devoted to enforcement, the number of investigations, complaints and prosecutions broken down by type. A further breakdown of the number of complaints by province was also provided.

**(a) *Resources Dedicated to Enforcement***

Using the information noted above, we describe the extent to which enforcement activity differs between jurisdictions, focusing on quantitative measures of enforcement activity such as the number of investigations and the size of penalties and settlements.<sup>2</sup> Our goal at this stage is simple documentation. We investigate possible socio-economic explanations for the differences in activity levels later.

Of the 13 commissions, several have very few staff.<sup>3</sup> As a result, staff must cover many activities. In such circumstances, we do not have a good sense of the percentage of time dedicated to enforcement relative to all other activities nor do we have a separate budget item for enforcement activity. As a result, we do not include New Brunswick, Northwest Territories, Nunavut or the Yukon in our comparisons.

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<sup>2</sup> A more detailed analysis of the differences in the distribution of the types of cases as well as an identification of the legal drivers behind decisions is provided in Mary Condon, “The Use of Public Interest Enforcement Orders by Securities Regulators in Canada” (WPC Research Study, 2003) at Appendix 1.

<sup>3</sup> For example, Nunavut has a total of two staff in its securities area, while the Northwest Territories has three staff.

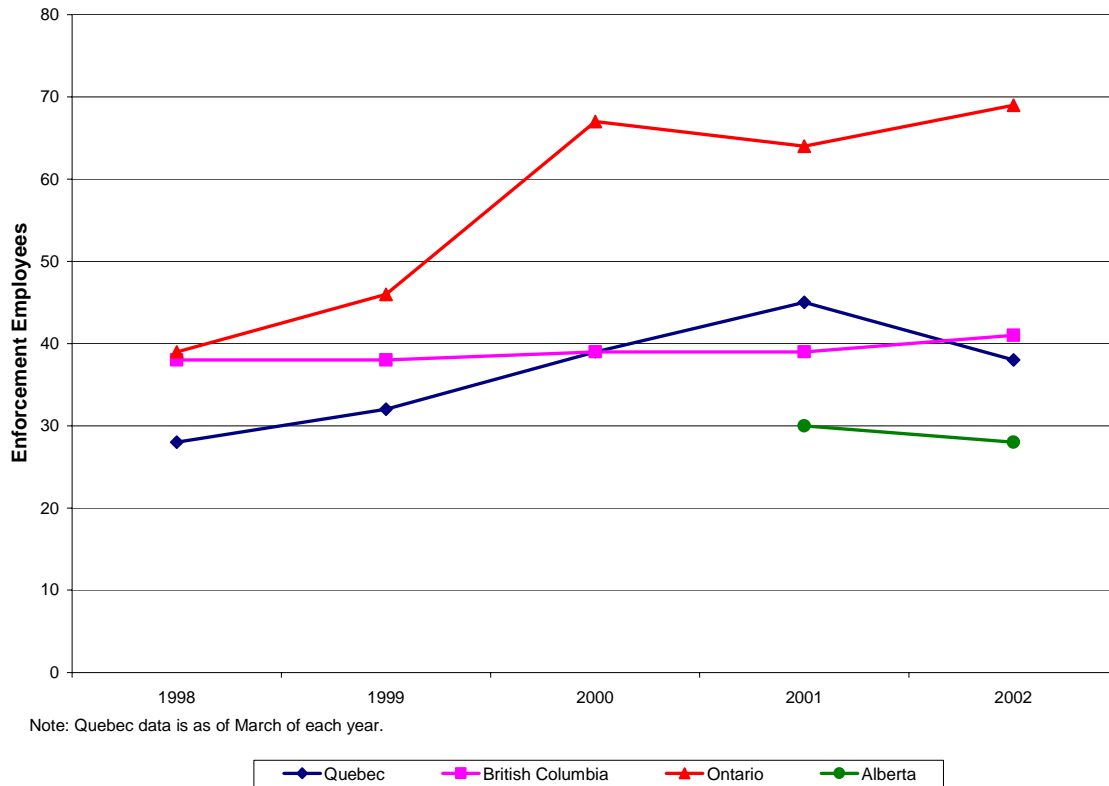
Enforcement budgets are largely related to the number of staff dedicated to enforcement activity. This strong relationship between staff and budget allows us to estimate enforcement budgets using information on total staff and enforcement staff together with data on total budgets where we were unable to obtain actual enforcement budgets from commissions. Table 3 below provides the actual enforcement budget for those commissions where we have this information, and the imputed enforcement budget (calculated as the percent of labour in enforcement multiplied by the total budget).

**Table 3: Actual Enforcement Budgets versus Imputed Enforcement Budget**

<b>Commission</b>	<b>Actual Enforcement Budget 2002 CDN\$(000's)</b>	<b>Imputed Enforcement Budget CDN\$(000's)</b>
Alberta	\$3,084	\$3,757
Newfoundland	\$50	\$64
Saskatchewan	\$230	\$234
Ontario	\$9,225	\$10,704
Nova Scotia	\$124	\$95
British Columbia	\$3,456	\$2,897
Manitoba	\$400	\$436
Quebec	\$4,418	\$4,615
Texas	\$1,778	\$2,607
Wyoming	\$375	\$406
Colorado	\$1,902	\$1,530

For those commissions that provided data over time, Figure 1 graphs the number of enforcement staff over time.

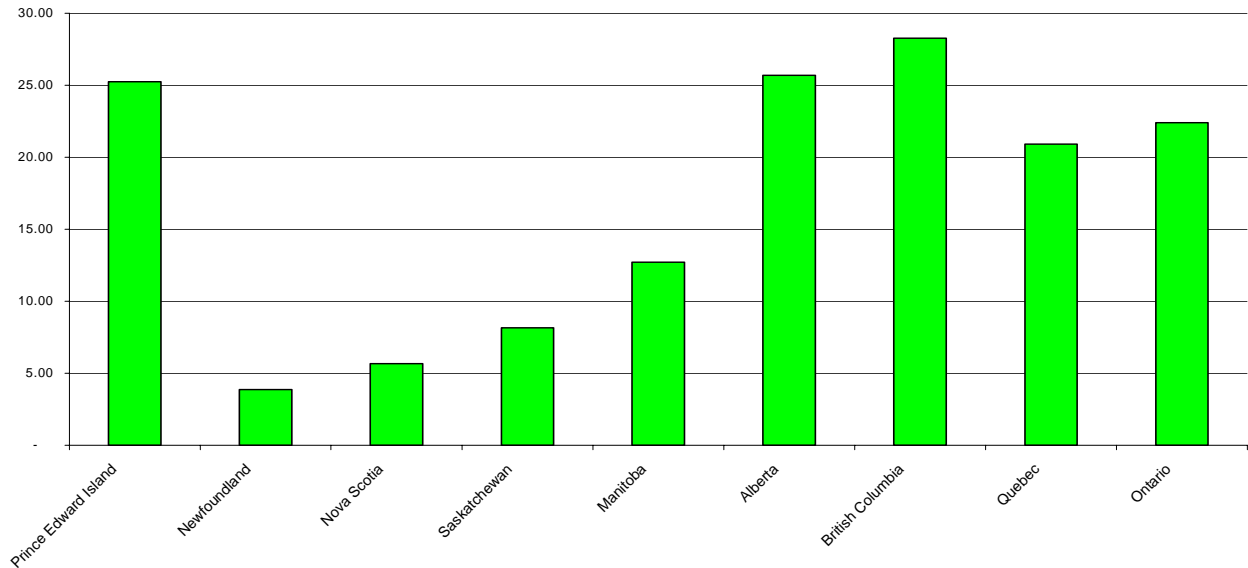
**Figure 1: Securities Enforcement Staff Over Time**



Both Ontario and Quebec have significantly increased their enforcement resources. The change in Ontario's enforcement resources is remarkable, increasing 77% between 1998 and 2002. In contrast, enforcement staff numbers in Alberta and British Columbia have remained relatively constant over time.

Figure 2 shows the total enforcement budget across commissions relative to GDP for the most recent fiscal year.<sup>4</sup> Note that the enforcement budget for Prince Edward Island (PEI) is calculated using the share of employees dedicated to enforcement as described above. All other commissions report actual enforcement budgets, with the exception of Quebec, which reports enforcement expenditures.<sup>5</sup> The provinces are ordered from smallest to largest.

**Figure 2: Canadian Enforcement Budgets per CDN\$1 million of GDP**



Apart from PEI, enforcement budgets are significantly larger for the bigger provinces.<sup>6</sup> Among the largest four provinces, Alberta and British Columbia have greater enforcement budgets relative to GDP compared to Quebec and Ontario.<sup>7</sup> This may reflect the fact that Quebec and Ontario benefit from scale economies.

<sup>4</sup> The most recent fiscal year is 2002-03 unless otherwise indicated. The most recent data for Manitoba, Newfoundland and Prince Edward Island are for 2002. As described above, the commissions without data on dedicated enforcement staff or budgets are excluded (New Brunswick, Northwest Territories, Nunavut and the Yukon).

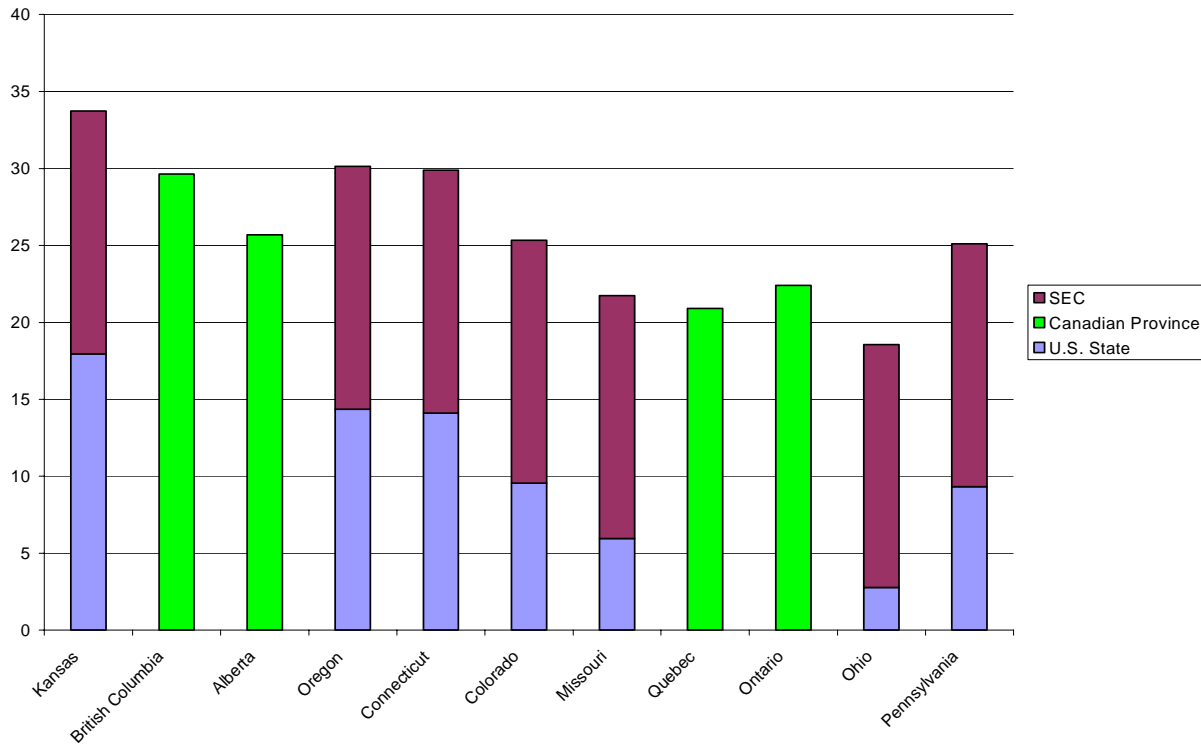
<sup>5</sup> We are informed by officials at the CVMQ that the budget allocated to enforcement generally matches expenditures related to enforcement.

<sup>6</sup> The same is true if per capita enforcement budgets are compared across commissions.

<sup>7</sup> The same is true if per capita enforcement budgets are compared across commissions.

For comparison purposes, Figure 3 shows enforcement budgets (in Canadian dollars) relative to GDP for the SEC together with U.S. states of comparable size to the larger Canadian commissions in 2002.<sup>8</sup> We include the four largest Canadian commissions for comparison purposes. Once again, the jurisdictions are ranked from smallest to largest. In general, there are higher expenditures on enforcement in the U.S. compared to Canada.<sup>9</sup>

**Figure 3: Canadian and U.S. Enforcement Budgets per CDN\$1 million of GDP**

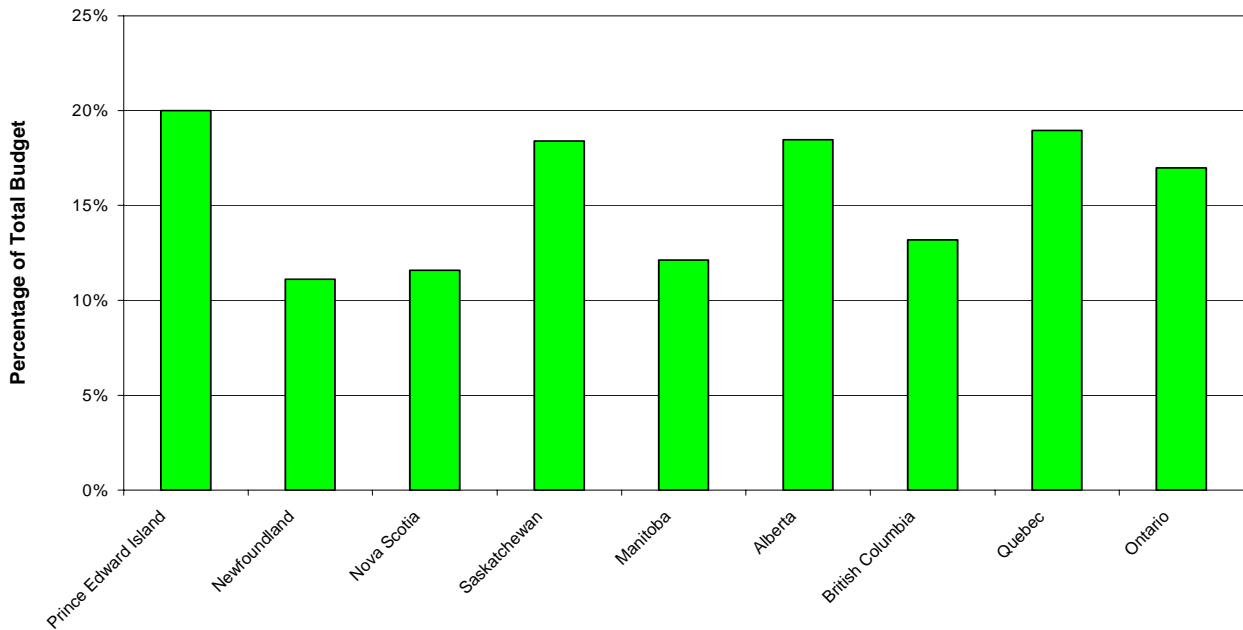


<sup>8</sup> The figures reported for Colorado and Kansas are fiscal year 2002-03. Actual enforcement budgets were provided for Alaska, Colorado, Texas and Wyoming. The remaining states' and the SEC's enforcement budgets were calculated by multiplying the percentage of personnel dedicated to enforcement and the total budget.

<sup>9</sup> The same is true if per capita enforcement budgets are compared across commissions.

Figure 4 expresses each Canadian commission's enforcement budget as a percentage of its total budget in the most recent fiscal year. There is variation across provinces, without any clear relationship between jurisdiction size and the percentage of the total budget dedicated to enforcement. Among the larger commissions British Columbia has a smaller budget share dedicated to enforcement compared to Alberta, Ontario and Quebec.

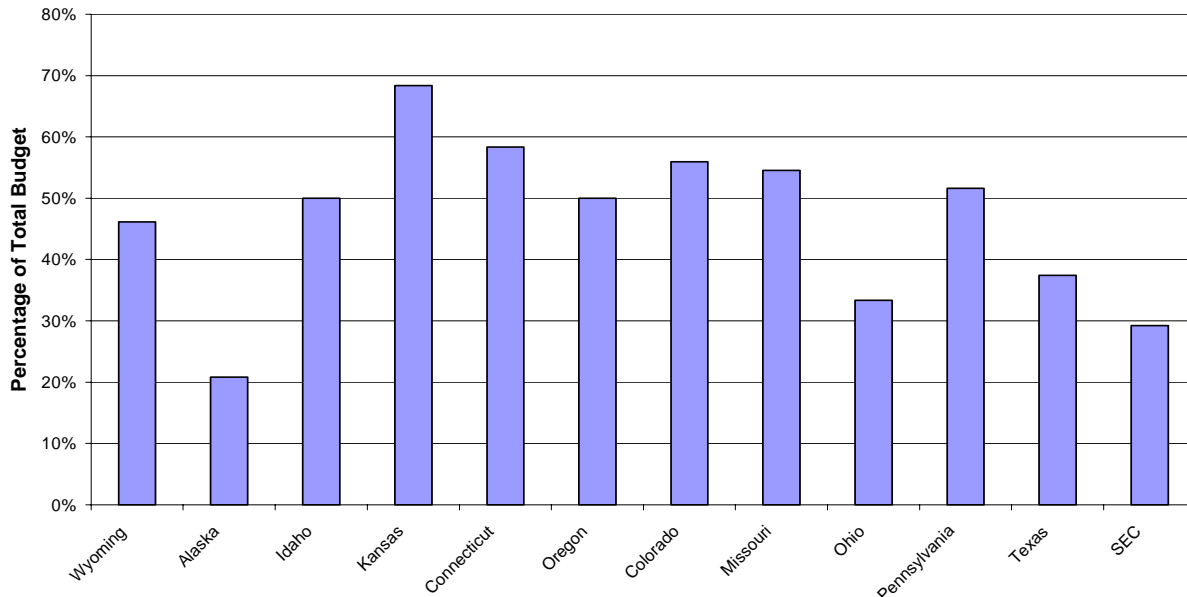
**Figure 4: Canadian Enforcement Budgets as a Share of Total Budget**



Note: Figures for PEI, Newfoundland, and Manitoba are for 2002. Enforcement budget for PEI is allocated based on enforcement personnel as a percentage of the total budget.

Figure 5 provides the U.S. state and SEC enforcement budgets as a percentage of their respective total budgets. In the case of the SEC, the calculation is based on total number of employees dedicated to enforcement relative to total number of employees.

**Figure 5: U.S. Enforcement Budgets as a Share of Total Budget**



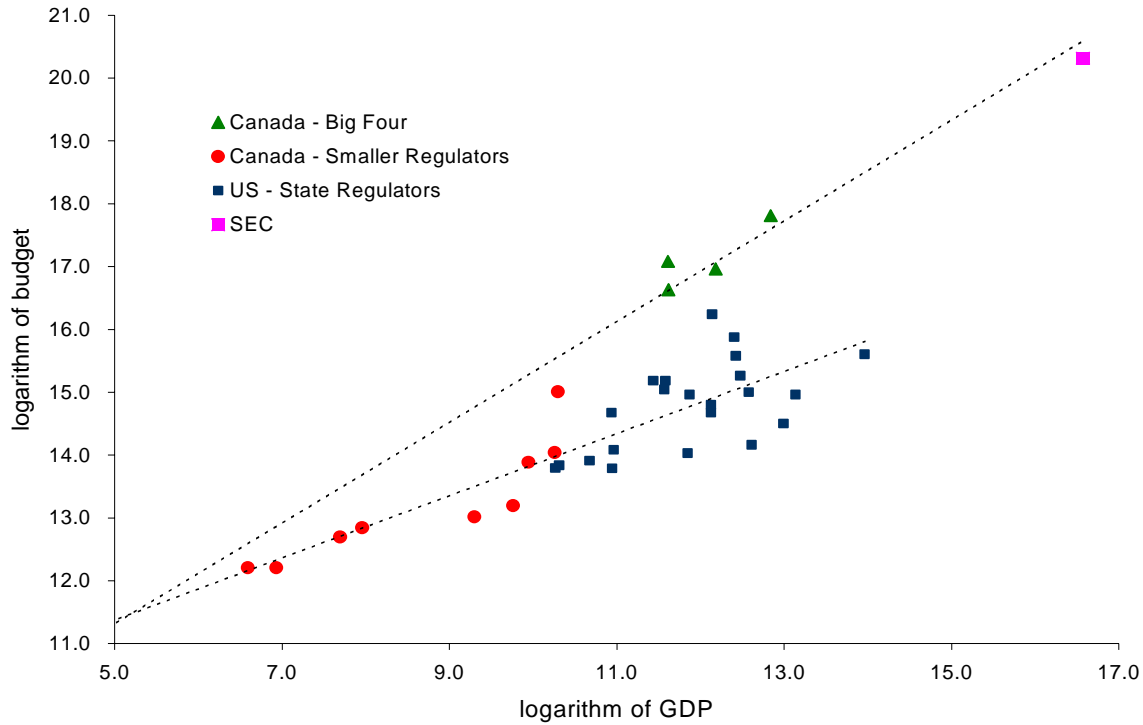
Note: Figures for Colorado and Kansas are for fiscal year 2002-03. Actual budgets are provided for Alaska, Colorado, Texas and Wyoming. The remaining states' and SEC budgets are calculated as a share of enforcement personnel to total budget.

Like Canada, there is variation across jurisdictions as to the percentage of the budget allocated to enforcement.<sup>10</sup> The SEC undertakes enforcement activities and also acts as a central policy-maker for securities regulation in the U.S. As a result, it might be expected to devote a smaller percentage of its overall budget to enforcement compared to many U.S. states, in light of the limited policy-making role that state securities regulators perform.

<sup>10</sup> We can calculate a statistic to get a sense of the difference in the degree of variation between the two countries. We first normalize expenditure enforcement shares in each country by dividing each state or province share by the average share for the data in the respective country samples. (We exclude Alaska from the calculations as it differs the most from the average. This does not change our qualitative conclusions.) We then calculate the standard deviation, a measure of dispersion in the data, for each country. The standard deviation is 23% for Canada and 17% for the U.S. states. The higher standard deviation in Canada suggests that there is more variation in Canada compared to the sample of U.S. states. However, the difference is not statistically significant which here practically means that if we used a second U.S. sample of states there is a reasonable likelihood that the measured difference would disappear.

Figure 6 shows a plot of total securities operating budget against GDP (in logarithms) for Canadian commissions, the SEC and the various U.S. states.

**Figure 6: 2002 Operating Budgets and GDP by Jurisdiction**



As evident from Figure 6, the primary securities regulators in Canada are more like the SEC, while the smaller provincial commissions are similar to the U.S. state commissions. Nonetheless, a comparison of Figures 4 and 5 indicates that the larger Canadian commissions devote considerably less of their total budget to enforcement than does the SEC.

*Additional Detail on Enforcement Staff Allocation*

A breakdown of enforcement staff by function is only available for Alberta and Ontario. Both commissions provided us with three years of data. Table 4 reports the allocation of enforcement staff by function, averaged over 2000-2002. (Note that the percentages do not add to 100% due to rounding.)

**Table 4: Allocation of Enforcement Labour Resources, 2000-2002 Average**

	<b>Alberta</b>	<b>Ontario</b>
Case Assessment	27%	20%
Surveillance*	—	16%
Investigation	37%	39%
Litigation	29%	20%
Director's office	7%	6%

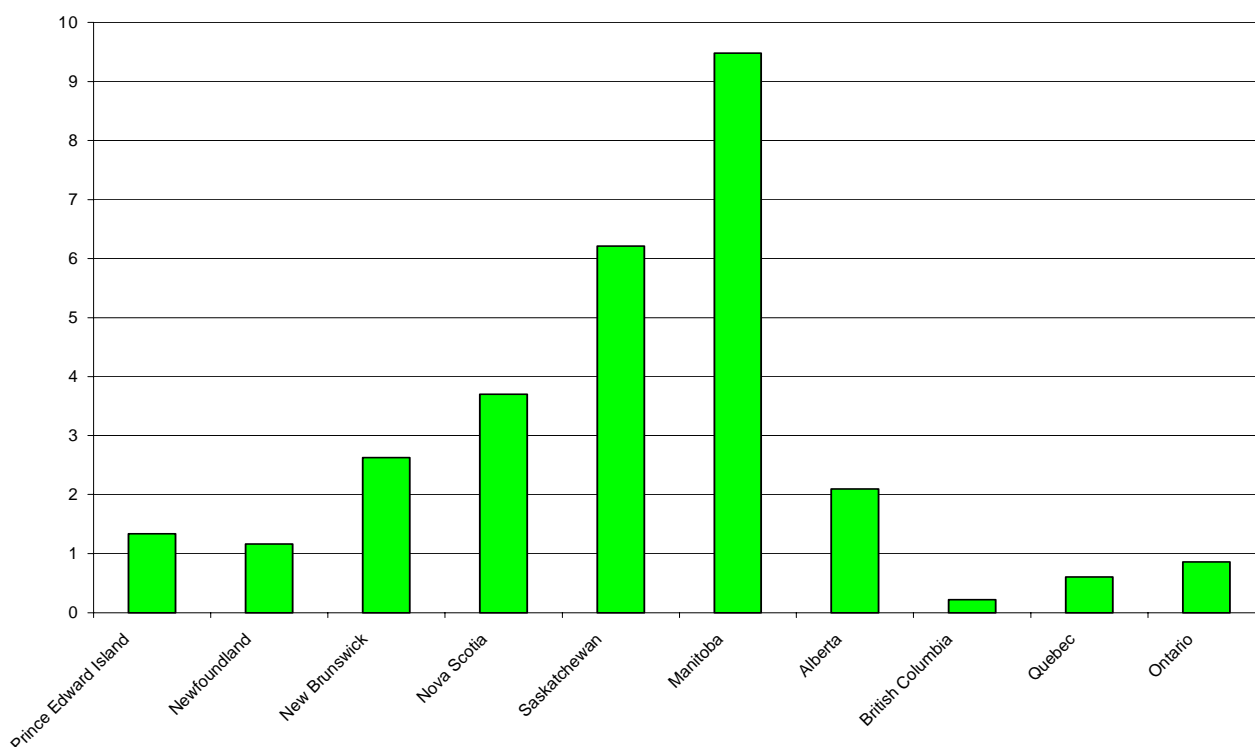
\* Alberta does not separate out surveillance functions

Both Commissions devote similar resources to investigation and the director's office. Ontario devotes more of its enforcement resources to case assessment and surveillance while Alberta devotes more of its enforcement resources to litigation. Notwithstanding the differences that exist between Alberta and Ontario in respect of total resources dedicated to securities enforcement, the division of the available resources by function is similar.

**(b) Enforcement Outputs**

Having examined differences in inputs dedicated to enforcement, we turn next to measures of outputs.<sup>11 12</sup> Figure 7 shows the most recent year's number of securities investigations per CDN\$1 billion of GDP for ten commissions.<sup>13</sup> We include New Brunswick as we have available data.

**Figure 7: Canadian Investigations per CDN\$1 billion GDP**



<sup>11</sup> In the final analysis, the *outcome* that is important is promoting the “public interest” by pursuing capital market integrity, fairness and efficiency. Our focus in this section is on *outputs* of securities regulators, which are much easier to measure but may not all be closely correlated with the above outcomes.

<sup>12</sup> One of the main objectives of enforcement activity is deterrence. While this is one of the critical objectives, it is very difficult to measure deterrence effects of enforcement activity. Two fundamental problems arise. First, it is often impossible to identify the impact of greater enforcement resources on the incidence of crime when enforcement resources and crime rates potentially move together. To illustrate, it is often the case that areas of high crime have high numbers of police compared to areas of low crime because authorities allocate more police to areas where crime is higher. This makes it difficult to determine the extent to which increasing the number of police leads to less crime unless one can identify exogenous changes in enforcement levels and track their effects over time. Second, it can be very difficult to separate out the effect of greater enforcement resources on detection rates from the underlying crime rate. For instance, an increase in the number of police may lead to greater numbers of crimes being detected or reported as victims are more likely to report crimes if police are responsive and have the resources available to properly investigate crimes. This problem is especially acute in economic crimes where, in comparison to other types of crimes, detection levels are highly responsive to the level of enforcement activity.

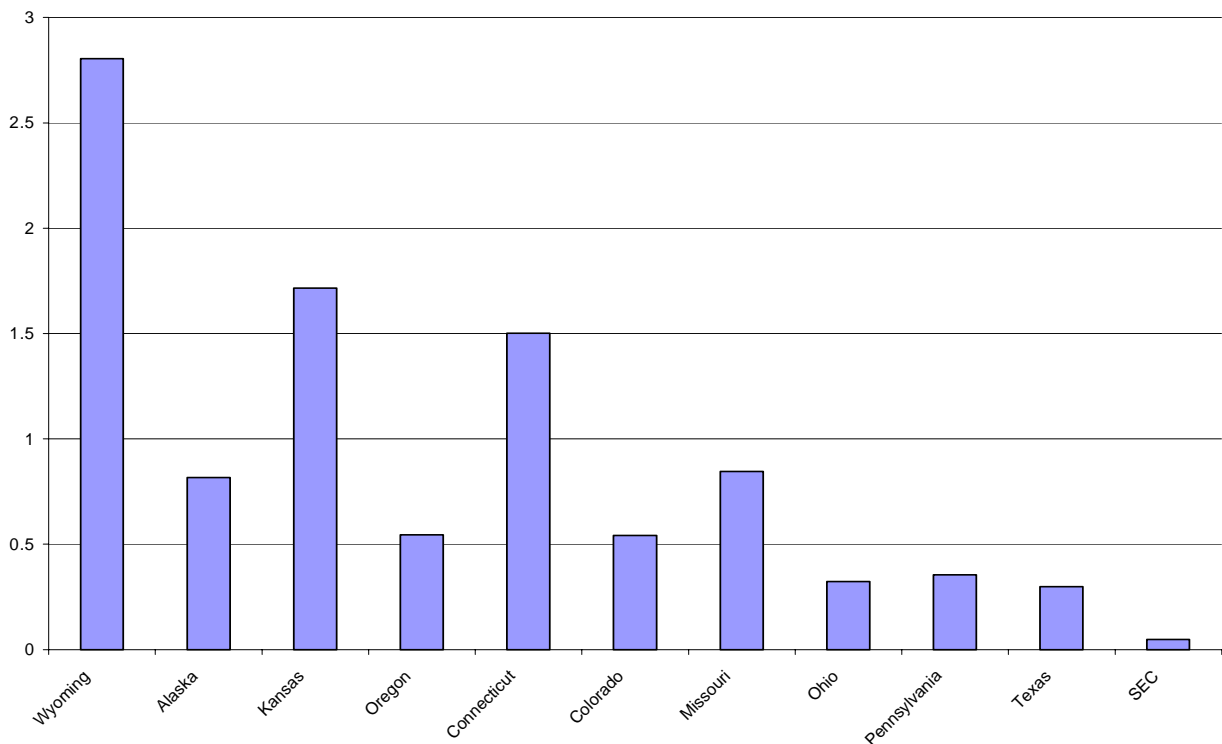
<sup>13</sup> This is either fiscal year 2002-03 or 2002 as noted above.

Among the smaller jurisdictions, there is a very strong positive correlation between the number of investigations and GDP.<sup>14</sup> This relationship is clearly broken for the larger provinces. One possible explanation for the differences between the larger and smaller commissions is the use of screening systems in the larger commissions to prioritize cases. This has the effect of reducing the number of cases that are advanced to the investigation stage.

Among the larger provinces, British Columbia has a very low number of investigations relative to GDP (and per capita). This is likely related to a change in the BCSC's screening system, which came into effect in 2001. As a result, the number of cases that reach the BCSC's case officers, which are counted as investigations, has fallen substantially. If we use the number of investigations prior to this change, the number of investigations relative to GDP in British Columbia is very similar to that in Ontario.<sup>15</sup> We examine below whether differences in socioeconomic factors between provinces can explain much of the variation in the investigation rate.

Figure 8 below provides the number of investigations per CDN\$100 million of GDP for the U.S. states and the SEC.

**Figure 8: U.S. Investigations per CDN\$1 billion GDP**



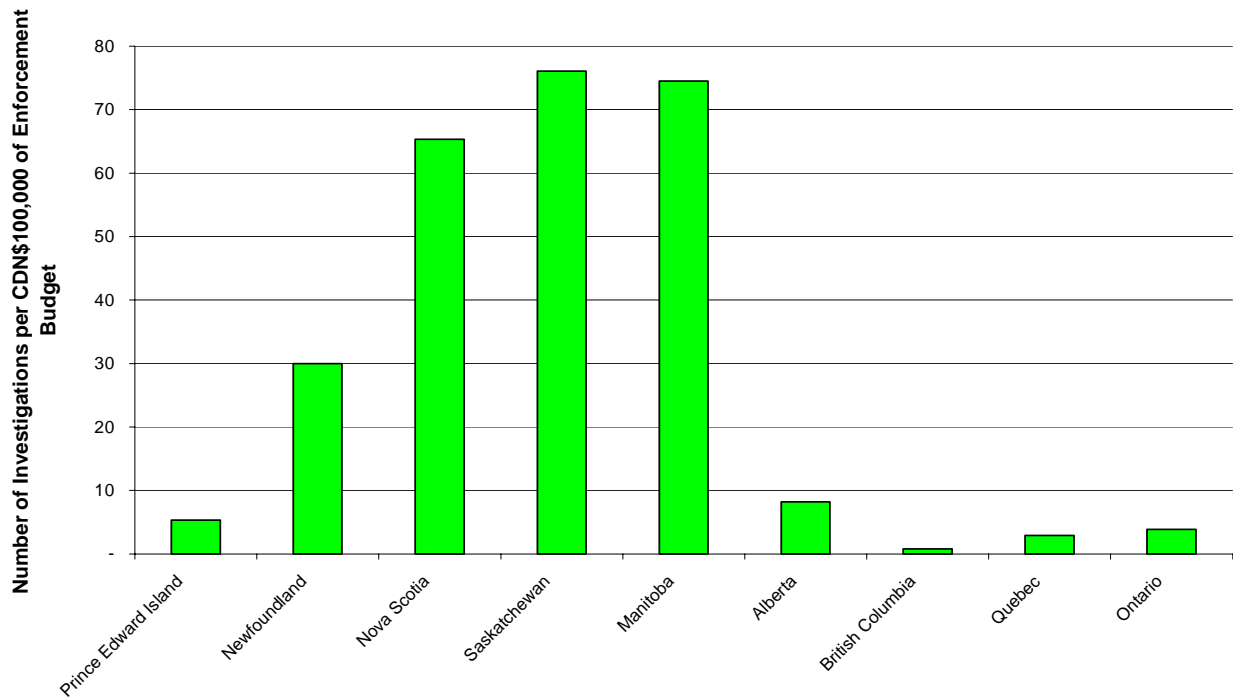
<sup>14</sup> The same is true if per capita investigations are compared across commissions.

<sup>15</sup> The same is true if per capita investigations are compared across commissions.

Among this group, we find considerable variation among the smaller states but greater uniformity among the larger states. Comparing Figures 7 and 8, the numbers of investigations relative to GDP for the larger Canadian provinces are generally comparable to the larger U.S. states.

Figure 9 below provides the number of investigations per CDN\$100,000 enforcement budget for the Canadian commissions for which we have available data.

**Figure 9: Canadian Investigations per CDN\$100,000 Enforcement Budget**

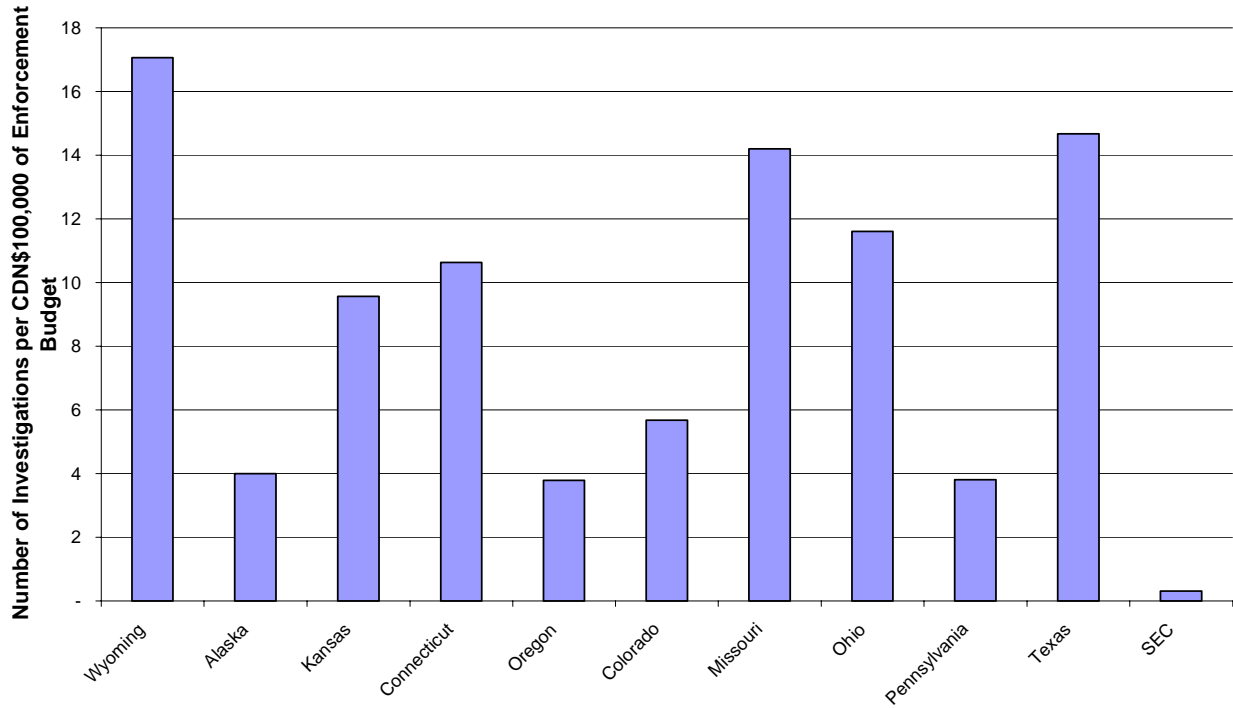


Note: Prince Edward Island investigations are an annual average.

Figure 9 shows a dramatic difference between the large and small commissions. We expect the differences to reflect the use of formal screening systems by the larger four commissions – larger commissions focus on larger cases and hence have fewer investigations. Among the larger provinces, Alberta has the highest number of investigations per CDN\$100,000 enforcement budget.

Figure 10 below presents the number of investigations per CDN\$100,000 enforcement budget for the U.S. states and the SEC.

**Figure 10: U.S. Investigations per CDN\$100,000 Enforcement Budget**



Note: Alaska investigations are an annual average

Like the larger Canadian commissions, Figure 10 reveals considerable variation between the larger U.S. states. Among the U.S. states considered here, there are no clear differences between large and small states.

The RS data provides another perspective on potential differences between regions. Between 1998 and 2002 there were on average 35.8 RS investigations closed per year for the TSX and 118 RS investigations closed per year for the Venture Exchange. There are about 1.9 times more firms listed on the TSX Venture Exchange than on the TSX so that the rate of investigation is substantially higher for TSX Venture Exchange firms.<sup>16</sup>

<sup>16</sup> Based on the number of firms listed on each exchange in the spring of 2003, the investigation rate is about 4.8% for TSX Venture Exchange-listed firms and 2.8% for TSX-listed firms.

### *Additional Detail on Resolution of Investigations*

We have some additional detail on the number of complaints received, investigations launched and their outcome for the four large commissions, reported in Table 5 below. For each province we also present the number of complaints received by the IDA. As not all commissions maintain the same set of data, we do not have comparable statistics on all classifications.

**Table 5: Average Complaints, Investigations and Proceedings per CDN\$10 billion GDP, 2000-2002**

	<b>Ontario</b>	<b>Quebec</b>	<b>Alberta</b>	<b>B.C.</b>
IDA Complaints*	13.94	4.03	9.66	22.19
Commission Complaints	19.75	7.96	60.54	–
Investigations	8.70	6.14	19.36	**
Settlements	–	–	1.70	1.45
Hearings	0.65	1.61	–	2.18
Criminal Cases	0***	–	0.20***	0.12***
Monetary Penalties	\$159,873*	\$53,007	\$16,614	\$160,316

\* Average is only for 2001 and 2002.

\*\* British Columbia Investigations are excluded because after moving to risk-based enforcement the number of investigations is not comparable to the other large commissions.

\*\*\* Figures for Ontario and Alberta are for Provincial Court proceedings. British Columbia figures represent criminal prosecutions where charges were laid.

Several points may be drawn from Table 5. Taking the ratio of investigations to complaints, we find Quebec has the highest percentage of its complaints become investigations – at 77% – while Alberta has the lowest at 32%. Ontario has 44% of its complaints become investigations. We note that these differences may be entirely related to definitions. British Columbia has the largest number of hearings, followed by Quebec and Ontario, once scaled for GDP. Monetary penalties, which encompass fines, administrative penalties, settlement proceeds, cost awards and restitution are comparable in Ontario and British Columbia, and are several times larger than those in Alberta and Quebec once account is taken of GDP differences. Note that not all regulators will have had all of these powers over 2000-2002. While Alberta has the highest number of investigations relative to GDP, its monetary penalties relative to GDP are the lowest perhaps due to the mix of cases it took over 2000-2002.

Table 6 below provides information on the outcome of complaints to the IDA.

**Table 6: IDA Activity Annual Averages for 2000-2002**

	<b>Annual Average</b>	<b>Per CDN\$10 Billion GDP</b>
Complaints	1,125	11.8
Investigations	181	1.9
Prosecutions	210	2.2

In terms of the type of investigations undertaken, we have some comparable information on criminal cases and penalties from several jurisdictions; notably, Alberta, British Columbia and Ontario in Canada; and Connecticut, Idaho, Missouri, Ohio, and Pennsylvania in the U.S.<sup>17</sup> Table 7 below summarizes the frequency of criminal securities cases relative to GDP and relative to total securities investigations.

**Table 7: Criminal Securities Cases, Annual Average 2000-2002**

	<b>Criminal Securities Cases</b>	<b>Criminal Cases as a percent of all Investigations</b>	<b>Criminal Securities Cases per CDN\$10 billion GDP</b>
Alberta	2.33	1.0%	0.20
British Columbia	1.33	5.4%	0.12
Ontario	0.00*	0.0%*	0.00*
Connecticut	5.67	2.1%	0.30
Idaho	1.00	N/A	0.22
Missouri	5.00	3.3%	0.24
Ohio	5.33	3.0%	0.12
Pennsylvania	2.00	1.3%	0.04

\* While there were no criminal cases in Ontario during 2000-2002, there were six criminal securities cases in Ontario in 1999 out of a total of 359 investigations that year.

Differences across jurisdictions in respect of the frequency with which criminal cases are pursued may reflect differences in the laws (i.e. criminal proceedings may not be available), the frequency of financial crime, detection rates, and the propensity to pursue criminal as opposed to other types of proceedings. Thus, where civil penalties include injunctive relief and large penalties- monetary and otherwise – there may be fewer criminal cases pursued.

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<sup>17</sup> Some states, such as Texas, report total number of individuals convicted rather than total number of criminal proceedings, and hence we exclude Texas from the comparison.

A similar problem of “apples-to-oranges” comparisons arises when comparing penalties across jurisdictions. Monetary collections from enforcement actions can include fines or administrative penalties, settlement proceeds, cost awards and restitution. Not all regulators have equal powers in these respects. Bearing this caveat in mind, Table 8 below presents fines and administrative penalties per CDN\$1 billion GDP for the Canadian commissions and U.S. regulators for which we have data. It is important to bear in mind that some of the differences revealed in Table 8 may result from different legal frameworks. For example, not all commissions have equal opportunity to pursue criminal penalties<sup>18</sup> nor can all seek administrative monetary penalties.<sup>19</sup>

Total penalties are higher in the U.S. due to large restitution payments. Administrative penalties and fines are comparable, on average, between Canada and the U.S. However, when account is taken of SEC civil penalties and disgorgements of illegal profits along with U.S. state restitution, U.S. monetary penalties are ten times larger than average Canadian penalties, per CDN\$10 billion GDP.

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<sup>18</sup> AssetRisk Advisory Inc. in a report studying best practices in enforcement noted in comparing the OSC, BCSC, SEC and FSA (Financial Services Authority in the U.K.) that “financial crime does not have a high profile with government or police in Canada, unlike in the United Kingdom and the United States, and therefore regulators in Canada do not have the option of ready access to the criminal justice system with respect to securities fraud.” (p. 8). AssetRisk Advisory Inc., *Best Practices in Capital Markets Enforcement* (2002).

<sup>19</sup> For an enumeration of the penalties available to different commissions, see Mary Condon, “The Use of Public Interest Enforcement Orders by Securities Regulators in Canada” (WPC Research Study, 2003) at Appendix 1.

**Table 8: Breakdown of Penalties per CDN\$10 billion GDP (All figures are annual averages for the years where data was available)**

Commission	Admin. Penalties / Fines	Costs	Restitution/ Disgorgement	Total	Number of Years with Available Data
Alberta	\$11,592*	\$5,022		\$16,614	3
British Columbia				\$157,624***	8
Manitoba	\$17,113*	\$13,078		\$30,190	4
Nova Scotia		\$457		\$457	1
Ontario	\$150,636*	\$9,237**		\$159,873	2
Quebec	\$52,179*	\$1,162		\$53,340	4
Saskatchewan	\$5,960	\$960		\$6,920	11
<b>Canada**</b>	<b>\$93,418</b>	<b>\$6,188</b>		<b>\$104,302</b>	
Alaska	\$65,303			\$65,303	5
Connecticut	\$39,492		\$203,092	\$242,584	4
Idaho	\$15,365	\$1,381	\$281,189	\$297,934	4
Kansas	\$30,620		\$17,560	\$48,180	3
Missouri	\$55,641		\$3,398	\$58,859	1
Texas	\$2,716		\$664,326	\$667,042	4
Wyoming	\$60,801	\$1,726	\$331,697	\$394,224	5
SEC	\$101,495		\$767,509***	\$869,004	4
<b>U.S.**</b>	<b>\$119,865</b>	<b>\$1,493</b>	<b>\$1,230,467</b>	<b>\$1,333,887</b>	

\* Settlement payments are included for these provinces. For Ontario, the average settlement payments for 2000-2002 were \$2,925,000.

\*\* Based on data for the indicated provinces and states, weighted by population. Blank entries are not counted as zeroes in computing the averages. The SEC cost per population is added to the population averages for the states.

\*\*\* Disgorgements of illegal profits.

#### *Additional Detail on Types of Cases Pursued*

Of the Canadian commissions, only Ontario and Manitoba were able to provide the type of investigations (e.g., trading without registration or sale of unregistered securities) over time. As each province uses different grouping criteria we aggregated the data in order to make comparisons across the two jurisdictions. Table 9 reports the data for 2002.

**Table 9: Details on Types of Investigations, 2002 (percent of all investigations)**

	<b>Manitoba</b>	<b>Rank</b>	<b>Ontario</b>	<b>Rank</b>
Sale of Unregistered Securities	13.8%	1	4%	7
Fraud / Theft	6.7%	2	5.4%	5
Abusive Sales Practices & Misconduct	6%	3	17%	2
Abusive Trading Practices	3.4%	4	24.2%	1
Trading without Registration	3%	5	14.4%	3
Non-Disclosure / Misleading Disclosure	1%	6	4.5%	6
Assistance-Law Enforcement	0.34%	7	2.5%	8
Takeover Bid Issues	0%	8	0.6%	10
Assistance to other Commissions and Branches	0%	8	6.8%	4
Non-Compliance with Commission Orders	0%	8	0.85%	9
Other	66%		20%	

Manitoba classifies a much larger share of its investigations under “Other”. In light of this, it may be more useful to examine the relative ranking of particular types of investigations rather than the absolute numbers. For Manitoba, investigations of sales of unregistered securities rank as the most important category (other than “Other”) whereas this category only ranks fourth out of ten for Ontario. In Ontario, investigations of abusive trading practices are the most important category.

The greater emphasis on abusive trading and sales practices in Ontario and sales of unregistered securities in Manitoba is not surprising. Ontario has a large number of public companies, many of which are large, and higher incomes that generate more investing activity and opportunities for misconduct such as insider trading. Manitoba is a much smaller province and therefore must deal with problems more likely to arise with smaller firms, such as selling unregistered securities. As a result, there appear to be few common trends between the two commissions in terms of their types of investigations over time.<sup>20</sup> This is consistent with our discussions with directors of enforcement within the commissions, who indicated that the mix of enforcement activity differs considerably from province to province.

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<sup>20</sup> Statistical tests suggest that the investigation type rankings between Manitoba and Ontario are not highly correlated.

Table 10 provides details on the types of investigations pursued by the IDA, while Table 11 provides information on RS investigations.

**Table 10: IDA Investigations by Type, Annual Average 2000-2002**

<b>Type of Investigation</b>	<b>Annual Average</b>	<b>% of Total</b>
Capital Deficiency	8	4.4%
Churning & Excessive Trading	0	0.2%
Conduct	8	4.2%
Dismissal for Cause / Termination	7	3.9%
Falsification of Information	11	6.1%
Fraudulent Activities	6	3.1%
Inappropriate Dealings	10	5.5%
Internal Control Issues	9	5.0%
Misrepresentation	4	2.4%
Money Laundering	0	0.0%
Service Issues	0	0.2%
Supervision	8	4.6%
Trading Irregularities	7	3.7%
Trading Outside Jurisdiction	0	0.2%
Unauthorized or Discretionary Trading	33	18.2%
Unsuitable Investments	50	27.6%
Violation of Regulator Orders	2	1.1%
Other	17	9.6%
<b>Total</b>	<b>181</b>	<b>100%</b>

**Table 11: RS Investigations by Type, Annual Average 2000-2002**

RS Vancouver			RS Toronto		
Type	Files Opened	% of Total	Type	Files Opened	% of Total
Insider Trading	20.0	31%	Manipulative/Deceptive Trading	11.3	49%
Market Manipulation	12.7	20%	Customer Principal Trade Violation	2.7	11%
Wash Trading	9.0	14%	Supervision	2.0	9%
Active Security Review	4.0	6%	Restriction on Trading	1.7	7%
Conduct Unbecoming	3.0	4%	Insider Trading	1.3	6%
Conflict of Interest	2.7	3%	Conduct Unbecoming	1.0	4%
High Closing	1.3	2%	Front-Running	1.0	4%
Advertising	0.7	1%	Disclosure	0.7	3%
Debit Kiting	0.7	1%	Client Principal Disclosure	0.3	1%
Discretionary Trading	0.7	1%	Normal Course Issue Bid	0.3	1%
Off the Floor	0.7	1%	Registered Trader Responsibilities	0.3	1%
Other	10.0	16%	Unapproved CATS Trading	0.3	1%
			Unregistered Trading	0.3	1%
<b>Total</b>	<b>64.3</b>	<b>100%</b>	<b>Total</b>	<b>23.3</b>	<b>100%</b>

Table 12 provides details of the SEC's investigations in 2002. As the SEC tracks its investigations differently from those of the Canadian commissions reported above, we are unable to directly compare SEC activity levels with any Canadian regulator.

**Table 12: Details on SEC Investigations, 2002**

<b>Primary Classification</b>	<b>Total</b>	<b>% of Total Actions</b>
Total Issuer Financial Statement and Reporting Actions	163	27%
Securities Offering Actions	119	20%
Total Broker-dealer Actions	82	14%
Insider Trading Actions	59	10%
Total Other Regulated Entity Actions	54	9%
Contempt Proceedings	47	8%
Market Manipulation Actions	42	7%
Delinquent Filing Actions	10	2%
Touting	13	2%
Miscellaneous Actions	7	1%
Corporate Control Actions	2	0%
<b>Total</b>	<b>598</b>	<b>100%</b>

## 2. Local Nature of Enforcement

The mix of cases and importance of enforcement may differ commission to commission to the extent to which regional or local differences in the markets require different enforcement responses. (We note that other researchers retained by the Wise Persons Committee are addressing local and regional aspects of securities regulation as their sole focus of enquiry.)

The more enforcement requires a local presence, and the greater the divergence in needs between regions, the more an enforcement system should lean towards one that has both regional representation and regional autonomy. On the other hand, a system of local autonomous enforcement may create differences in enforcement activity that arise only from the lack of coordination among regulators rather than from true regional differences. Thus, we would like to know not only the extent to which regulation is regional in terms of (ideal) implementation and needs, but also the extent to which separate regulators add their own idiosyncratic influence on enforcement activity that is not attributable, at least directly, to differences between regions.

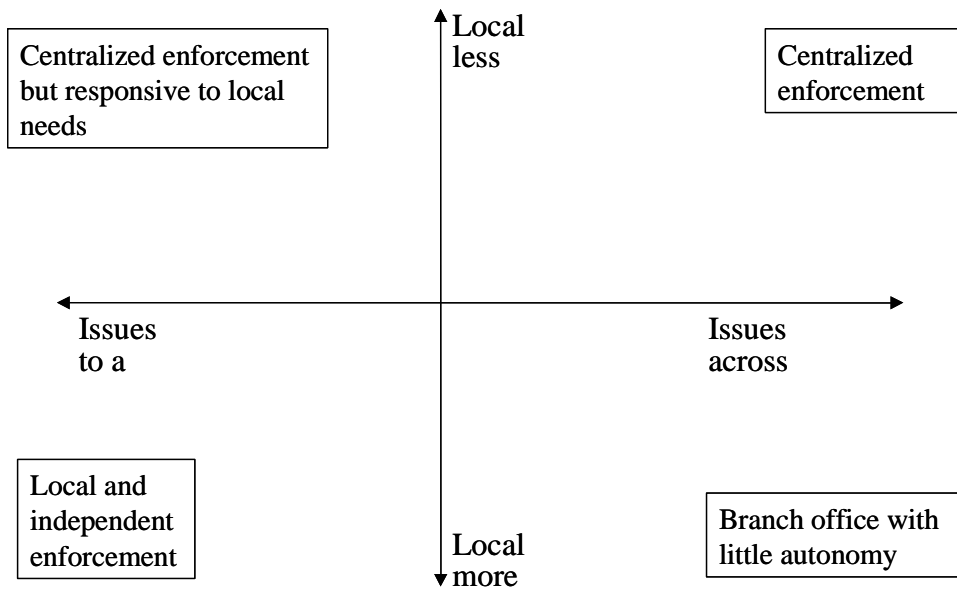
### (a) *Local Implementation and Regional Variation*

The extent to which enforcement priorities differ regionally because of regional differences is a separate issue from whether effective enforcement activity needs to be implemented locally. The two issues are frequently conflated. Just because enforcement activity (i.e. gathering evidence by visiting specific company locations) may be best organized locally does not mean that the rules or requirements for such activity (i.e. what constitutes violations of

rules and laws) need be different locally. For example, Canada has a common Criminal Code for the country, with enforcement activity related to it carried out by regional offices of the Attorney General of Canada, and provincial Attorneys General.

Figure 11 below provides a schematic representing these two dimensions. The horizontal axis identifies the extent to which enforcement issues are region-specific, while the vertical axis identifies the extent to which a local presence is important in carrying out enforcement activities.

**Figure 11: Schematic of Enforcement Dimensions**



In the southwest corner effective enforcement requires a local presence to carry out activities (e.g. investigators gathering evidence, prosecutors building cases, local access to respondents) and sufficient autonomy to develop region-specific rules and regulations. The opposite extreme is in the northeast corner where enforcement can be effectively carried out by a national regulator. In the southeast corner, a local presence is important for carrying out enforcement but the rules and regulations being enforced are largely common. A regional office that carries out enforcement under some direction from headquarters is appropriate. Finally, the northwest corner represents the situation where most enforcement can be conducted from a distance but the regulations need to be tailored to regional needs (this is largely hypothetical, as such a combination is unlikely to arise).

In our discussions with directors of enforcement at several commissions, all indicated that effective enforcement requires a local presence. Indeed, most enforcement activity, whether the law is provincial or federal, is carried out locally using local staff and budgets. Investigators need to be able to gather local intelligence. This requires proximity to react quickly and local knowledge in order to be effective. A local presence also reduces travel costs for witnesses and investigators.

Referring back to Figure 11, securities enforcement appears to be generally located in the southern quadrants where a significant amount of enforcement activity needs to be conducted at the local level. This still leaves open the extent to which enforcement priorities differ between regions, such that different rules and regulations are needed. As well, it leaves open the corresponding degree of autonomy that regional enforcement agencies should have in determining staffing levels and allocations, salaries, enforcement priorities, effort levels for specific investigations and prosecutions, collaboration and coordination with other agencies, and the use of different screening systems. To shed light on these issues, we investigate the extent to which regional socio-economic differences are important for understanding the observed differences in enforcement output.

### **(b) *Regional Socio-Economic Differences***

Despite Canada's relatively small population, we are a country of considerable economic and social variation. Those economic and social factors that strongly influence the level or type of financial crime (or rule violation) may explain and justify the variation in enforcement activity.

There are various socio-economic factors that may influence the incidence of securities regulatory infractions for a given population size. We focus on the following factors:

- Levels of disposable income;
- Distribution of income and the presence of high-income earners;
- Distribution of age and its interaction with wealth;
- Distribution of firms by size; and
- Distribution of employment by industry.

Higher average levels of disposable income are typically correlated with greater investment activity and larger individual investments. We expect greater investment activity and larger investment amounts would increase the potential benefits to be realized from violating securities laws. As well, we expect greater investment activity and larger investment amounts to be correlated with the number of violations given they imply larger numbers of intermediaries per capita.<sup>21</sup> Similarly, the greater the number of high-income (and high net-worth) individuals within a region the greater is the expected level of financial activity and hence the greater the opportunity for rule violation. On the other hand, high-income individuals are also more likely to be financially sophisticated and thus less vulnerable to frauds and scams. The exception may be those high-income individuals who are elderly who are often the targets of financial crime.

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<sup>21</sup> Not all commissions were able to provide us with data on the number of intermediaries within their jurisdiction. For those that did provide this information, definitions and groupings (e.g. individuals versus firms) of registrants differed sufficiently that we were unable to undertake valid inter-provincial comparisons. Once the National Database of Registration (NRD) is fully implemented for individual and firm registrants, such information will be fully (and consistently) available by province.

Turning to factors related to firms, variation in the types of firms within a region may affect the type and level of enforcement activity. For example, fraudulent financial reporting is much more likely in smaller firms, though the magnitude of any potential fraud is also smaller and the issues may be less complex.<sup>22</sup> Certain industries may also give rise to greater levels of enforcement activity if financial deceptions are more common in particular industries.

In addition to the socio-economic factors identified above, there may be other factors of importance such as investor education or ethnicity. We do not have a sufficiently large and detailed data set of enforcement activity to determine whether these factors either give rise to differences in enforcement activity. As well, it is unclear that there are sufficient differences in the *distribution* of investor education and ethnicity between regions to affect enforcement.

Table 13 below provides statistics by region on the identified socio-economic factors. There is considerable variation from one province to another. Alberta and Ontario are the richest provinces in terms of per capita disposable income while Saskatchewan and the Atlantic provinces are the poorest. British Columbia has a large share of high-income earners and has the highest investment income for those aged 50 to 84. Saskatchewan has the largest share of its population comprised of individuals over the age of 75.

In respect of firm and industry data, the Gini coefficient measures inequality across firms based on market capitalization. The coefficient ranges from zero to one. The closer it is to one the higher the level of inequality (i.e. the more the total market capitalization is concentrated in just a few firms). Alberta and Quebec have the highest level of inequality among firms while Saskatchewan, Manitoba and the Atlantic provinces have the lowest. Finally, we provide statistics on the share of employment in manufacturing and natural resources to capture regional differences in industry composition.<sup>23</sup>

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<sup>22</sup> See the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”), “Fraudulent Financial Reporting: 1987-1997 – An Analysis of U.S. Public Companies”, online at <http://www.coso.org/>.

<sup>23</sup> The data are gathered from Statistics Canada except for the Gini coefficients, which are derived from Bloomberg data. U.S. data used in the analysis below are from the Census Bureau.

**Table 13: Socio-Economic Statistics by Province**

	BC	AB	SK	MB	ON	QC	Atlantic
Per capita annual disposable income	\$21,097	\$24,835	\$18,492	\$20,866	\$23,687	\$20,629	\$19,260
Population percent with annual income > \$100,000	12.1%	10.7%	6.4%	6.7%	14.3%	7.2%	5.3%
Average annual investment income, age 50 – 84	\$2,803	\$2,735	\$2,689	\$2,192	\$2,548	\$1,803	\$1,126
Population percent > age 75	6.3%	4.5%	7.7%	7.0%	5.7%	5.7%	6.2%
Gini coefficient for market cap of listed firms	0.89	0.93	0.84	0.78	0.91	0.93	0.83
Share employment in manufacturing	10.0%	8.8%	6.1%	12.1%	18.5%	18.2%	10.3%
Share employment in natural resources	2.0%	5.6%	3.3%	1.1%	0.6%	1.1%	4.0%

**(c) Analysis of the Socio-Economic Factors and Enforcement Activity**

To determine the extent of any relationship between securities enforcement activity and the above-noted socio-economic factors, we employ multiple regression analysis. Multiple regression analysis allows us to identify and isolate the effect of various factors of influence on enforcement activity. The variable we are attempting to explain in the multiple regression analysis is enforcement activity – here we use the number of investigations per capita.<sup>24</sup> The variables that might “explain” differences across commissions in enforcement levels are the identified socio-economic factors. To the extent that commissions in Canada are similar we might expect any differences in their enforcement activity to fully reflect differences in socio-economic factors. If, instead, we find that commissions facing similar socio-economic conditions differ in their enforcement activity this suggests their enforcement priorities differ for reasons unrelated to socio-economic differences between regions. Our analysis proceeds in two steps. First, we determine if enforcement activity responds to any of the identified differences in provincial characteristics. Second, we determine whether Canadian commissions’ current activities introduce greater variation in enforcement activity that is not directly attributable to observable differences in socio-economic factors.

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<sup>24</sup> This is known as the “dependent” variable since it is dependent on the other variables. For example, if we were estimating how income is affected by education and age, income would be the dependent variable, which is explained by education and age – the “explanatory” variables.

We use the U.S. state data for comparison purposes and to assist in determining whether a relationship exists between the identified socio-economic factors and enforcement activity.<sup>25</sup> The U.S. provides a useful comparison in that we expect the SEC to deal with the “national” securities priorities, leaving local enforcement to the states. Thus, the U.S. state data provides a benchmark of how much variation in enforcement activity can be explained by differences in socio-economic factors across regions. Comparing the extent of variation across commissions in Canada to this benchmark allows us to determine the additional variation in enforcement activity that arises under Canada’s multiplicity of regulators that is unrelated to regional differences in socio-economic factors.<sup>26</sup> In Canada, commissions must deal with any particular local issues as well as any “national” or common issues that cross jurisdictions.

For the U.S. data to be useful for detecting the idiosyncratic effect of Canadian commissions on enforcement levels, it must be expected to produce less underlying variation in enforcement activity between jurisdictions (states) that is not explained by differences in socio-economic characteristics. As we have seen above, there appears to be greater homogeneity among the U.S. states in respect of their enforcement statistics. Also, as a result of partial centralization, the component of regulatory enforcement that is decentralized in the U.S. is targeted towards those activities that are highly state specific and that require a strong local presence. As one U.S. state regulator noted:

With the introduction of the National Securities Markets Improvement Act of 1996, Congress decreed that [while] the regulation of the national securities markets was appropriately the role of the SEC, the states should bear the primary responsibility for pursuing securities fraud at the local level. The SEC will probably never have the resources and presence necessary to pursue the local scam artists that prey on ordinary citizens. The states have always been and remain the “local cops on the beat” when it comes to responding to securities frauds targeting the public. The state agencies provide the fastest and only source of assistance for small investors.<sup>27</sup>

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<sup>25</sup> Our Canadian data is complete for ten provinces, though our sample size is larger than 10 since we have data over time for most of the provinces (4 years on average). The U.S. state data is useful in verifying whether we have discovered robust relationships using the Canadian data or whether the estimated relationships are the result of a small sample size.

<sup>26</sup> More precisely, we use regression analysis to examine how enforcement activity is related to various differences in the characteristics of various U.S. states (as well as changes over time in economic conditions). Regression analysis provides a measure of the strength of these relationships as well as their direction. We conduct a similar analysis using the Canadian data. We then compare the relative strength of the relationship between enforcement activity and regional characteristics for the two countries. To the extent that multiple regulators in Canada introduce “noise” in the level of enforcement activity, the strength of the relationships between enforcement activity and provincial characteristics will be reduced.

<sup>27</sup> E-mail from David S. Massey, Deputy Securities Administrator for the Department of the Secretary of State of North Carolina.

Since there is no equivalent of the SEC in Canada, the component of enforcement activity that is *not* highly dependent on provincial characteristics is still in the hands of the individual provincial regulators and each may deal with this common component differently.<sup>28</sup>

We use the number of investigations per capita as a measure of enforcement activity as it provides a reasonable measure of overall enforcement effort.<sup>29</sup> We also have the most consistent data on this measure across jurisdictions and over time. The regional characteristic variables we use are those discussed above.<sup>30</sup>

We begin with a simple specification that relates the number of investigations per capita to per capita disposable income and a time trend. We also include a dummy variable to capture the change made by the BCSC in moving to a risk-based screening system.<sup>31</sup> Below, we present the regression results for Canada and the U.S.

**Table 14: Regression Results, Per Capita Investigations as a Function of Income and Time**

Variable	Canada	U.S.
Per capita disposable income	0.584	0.645**
BCSC risk-based system	-4.21*	
Time trend	0.135	-0.617*
Intercept	-274	1222*
Observations	39	46
R-squared ( $R^2$ )	0.014	0.12

\* Significant at the 5% level.

\*\* Significant at the 1% level.

<sup>28</sup> We would expect that even if there were no differences in provinces that would require different approaches or intensities of enforcement, the fact that enforcement is complex would naturally give rise to differences between commissions for reasons that are not closely related to any observable differences in socio-economic factors either between provinces or over time.

<sup>29</sup> Nonetheless, some jurisdictions may conduct fewer but more in-depth investigations than others. For example, as mentioned above, BCSC has seen the number of (recorded) investigations drop considerably when it adopted a risk-based approach to regulation. Furthermore, different jurisdictions may have different criteria of what to count as an investigation. However, there is no reason to believe that U.S. state regulators would have a more standardized way of recording investigations than the Canadian commissions.

<sup>30</sup> As we have panel data (data that is both across jurisdictions and over time) there is also a time-series component to consider. We have time series data (data for a number of years) for disposable income per capita, employment by sector and share of population over various age thresholds. We do not have time-series data on the firm and income distribution variables though we would not expect these would change very much over time. We experimented with including average daily volumes and average daily values of the TSX300 (S&P500 for the U.S. regressions) for each year as a measure of overall market activity.

<sup>31</sup> A dummy variable takes a value of 0 or 1. In this case, it is equal to 1 after the BCSC adoption of its risk-based screening system and 0 prior to this.

While the overall fit of both models is low as indicated by the low R-squared,<sup>32</sup> the fit of the U.S. data is better than the Canadian data. More importantly, the U.S. data shows a strong, positive and statistically significant correlation<sup>33</sup> between per capita disposable income and per capita investigations.<sup>34</sup> A positive correlation also exists in the Canadian data, but it is not statistically significant.

Table 15 below provides the results using the fuller set of socio-economic factors as explanatory variables. We excluded some of the right-hand side variables that were not statistically significant from the reported results.<sup>35</sup>

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<sup>32</sup> The usual  $R^2$  measures the amount of variation in the dependent variable that is explained by the independent variables. It ranges from 0 to 1 with 0 indicating none of the variation is explained and 1 indicating all the variation is explained. In a random-effects regression there is no  $R^2$  that has the properties of the ordinary least squares  $R^2$ . However, the reported  $R^2$  is still useful (and similar to the usual  $R^2$ ) in describing how much of the variation in the dependent variable (e.g. investigations) is explained by the independent variables. Note, however,  $R^2$ s based on two different data sets are not strictly comparable so that small differences in  $R^2$ s would not lead us to conclude that one set of data is explained much better than another set of data.

<sup>33</sup> A variable is statistically significant if there is a low likelihood that the estimated relationship is due purely to chance because of random sampling.

<sup>34</sup> The positive relationship between per capita disposable income and per capita investigations could reflect the fact that richer states are able to spend more on public goods, including enforcement. However, if we include non-enforcement budget per capita in the regressions, which should also be correlated with public funding, the coefficient on disposable income remains positive and statistically significant while the coefficient on non-enforcement budget is insignificant. This suggests that the relationship between income and investigations is identifying the effect of income on investment activity rather than the public funding available for enforcement budgets.

<sup>35</sup> We do not include employment shares in manufacturing and natural resources because they were not statistically significant and, moreover, they are collinear with other variables resulting in higher standard errors (i.e. less accurate coefficient estimates). Inclusion of these additional variables does not have a large effect on the coefficient estimates. The percent of population over an age threshold (55, 65, or 75) was not statistically significant in any of the specifications (and had little effect on the coefficient estimates) so we excluded this variable as well.

**Table 15: Per Capita Investigations as a Function of Socio-Economic Factors**

Variable	Canada	US
Per capita disposable income	0.952	0.98**
Gini coefficient (market cap)	-64	-12.97***
Income > \$100,000 (Income > US\$75,000)	-198	-48.69**
Percent > age 65 and with incomes >\$75,000	6493*	
Percent > age 75 and with incomes > US\$100,000		1294
BCSC risk-based system	-4.02*	
Time trend	- 0.12	-0.97**
Intercept	275	1928**
Observations	39	42
R-squared (R <sup>2</sup> )	0.77	0.78

\* Significant at the 5% level.

\*\* Significant at the 1% level.

\*\*\* Significant at the 0.1% level.

Both regressions show considerable improvement in the R<sup>2</sup>, indicating that much of the variation in per capita investigations is explained by the socio-economic variables. In addition, in both countries, the regressions are performing similarly in terms of their ability to explain variation in per capita investigations.

The coefficient estimate on per capita disposable income is positive in both regressions though it is only statistically significant in the U.S. regression. Once account is taken of the exchange rate difference, the measured effect of per capita disposable income on per capita investigations between the two countries is somewhat larger in the U.S.

The coefficient on the measure of firm inequality (Gini coefficient) is negative in both regressions and statistically significant in the U.S. regression. Hence, as inequality increases (i.e. more large firms operate in the market) per capita investigations decrease. This may occur because investigations involving larger firms are likely to be more complex and take longer, which reduces the total number of per capita investigations. The much larger coefficient estimate for Canada indicates a greater sensitivity to firm inequality relative to the U.S.

The negative coefficient on high income is consistent with a view that higher income earners have greater knowledge of financial markets and therefore are less likely to be victims of frauds and scams.<sup>36</sup> The positive coefficient on the measures of individuals over age 65 with high-incomes indicates that this group is more likely to fall victim to financial crimes.

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<sup>36</sup> Recall that average incomes per capita accounting for greater opportunities for financial crime and rule violations have already been controlled for.

This coefficient is statistically significant in only the Canadian regression (but the coefficient on the somewhat different measure of high-income older individuals for the U.S. is significant at just over the 10% level in the U.S. regression).<sup>37</sup>

We do not find that the lower number of per capita investigations among the larger provinces is due to their use of screening tools other than the obvious reduction in cases that occurred in British Columbia. We included a dummy variable for the larger provinces to capture this potential effect but it was not statistically significant, and is not reported above.

Overall, the coefficient estimates indicate that enforcement responds to regional differences in socio-economic factors in predictable ways in both countries. However, the coefficient estimates tend to be estimated more precisely with the U.S. data (as indicated by the higher degree of statistical significance) which suggests that there is greater uniformity in how these U.S. states respond to differences in socio-economic conditions compared to the responses of Canadian commissions to such differences. On the other hand, the larger coefficient estimates using the Canadian data for the variables that are common in the two country regressions may suggest a greater sensitivity in enforcement response to differences in local socio-economic conditions in Canada.

#### **(d) *Policy Implications of Regional Differences and Enforcement Responses***

The regression results indicate that some (but not all) of the observed differences between Canadian commissions in the level and type of enforcement activities are explained by differences in socio-economic factors. We also find that differences in per capita investigations across Canadian commissions are not as closely correlated with these socio-economic factors as is the case for our sample of U.S. states.

In light of this analysis, it is important that any securities enforcement regime in Canada be designed to be responsive to local conditions. Thus, any centralized system that allocates resources based on an equal budget per capita would not optimally meet the enforcement challenges posed by different socio-economic characteristics in different regions. While our analysis provides some insight into the factors of importance, it is by no means exhaustive.

Responsiveness to local conditions for enforcement need not mean that there is no benefit to be derived in centralizing or harmonizing certain enforcement issues through a changed regulatory structure. As we discuss below, there are costs incurred from having multiple regulators interpret enforcement mandates differently. On its face, there would appear to be little benefit from allowing for possibly different interpretations of the public interest in ensuring the integrity of capital markets across provinces.

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<sup>37</sup> We were not able to get the percent of population in Canada of those over 75 with incomes above \$100,000. Thus our Canadian and U.S. measures of elderly with high incomes are somewhat different. Ideally, we would have used investment income for those over the age of 75 for both countries, but we did not have this data for the U.S. If we use investment income levels for those aged 50 to 84 in the Canadian regression in place of the percent of population over 65 with incomes above \$75,000 we get similar results – i.e. the coefficient is positive and statistically significant.

### 3. Jurisdictional Overlap

There are two extreme views of Canada's system of multiple securities regulators; one that argues it provides a form of competition among regulators which is beneficial to investors and market participants and one that argues it entails nothing but duplication and administrative waste. In the case of enforcement, the truth lies between these two extremes.

To deal with the first extreme, it is theoretically possible that having multiple commissions pursuing enforcement actions limits the likelihood that one commission will impose rules or sanctions that are costly to financial markets without significant policy benefits. Thus, the Canadian system may offer a form of "regulatory yardstick competition", with the result being improved enforcement. We do not believe the current system provides such benefits. True direct regulatory competition would require that firms could choose their regulator and all other regulators would defer to the chosen regulator. In such an environment, a regulator would have a competitive incentive to develop regulations that reduced regulatory costs imposed on firms to attract firms to choose it as their regulator. This type of regulatory competition does not exist between Canadian securities regulators, nor is it clear that moving in this direction is desirable vis-à-vis investor protection. Furthermore, to the extent that the outcomes of regulatory competition are desirable in financial markets, some of these may be achieved by comparing single regulators across countries.<sup>38</sup>

At the other extreme, the current enforcement regimes of Canada's various commissions do not entail complete duplication and overlap. While in the past, it was not uncommon to have parallel investigations by several commissions into the same or similar conduct this is no longer the case today. The commissions have vastly increased the level of enforcement cooperation and coordination between themselves as well as with SROs. This has resolved many problems of the past, although not all issues have been fully resolved.

Whatever the extent of coordination and cooperation, the very structure of the current regulatory regime in Canada today is likely to result in a sub-optimal level of enforcement from the perspective of a regulator who aims to maximize national interests. There is no mandate for any current commission to act in the national interest, though the SROs may have this broader mandate in respect of their members. Each commission rightfully operates in its own provincial interest. While some might subsume such interests or take into account the possible effects their actions may have outside of their own jurisdiction there is no reason to believe that this will happen as consistently or effectively as would exist with a national regulator. Quite simply, there is no mechanism to deal with conflicting interests when these arise or to force a commission to fully account for the externalities – positive or negative – that its enforcement decisions create for other jurisdictions.

While some violations of securities laws and regulations entail localized issues only, most registrants and issuers in Canada have national presences. Thus, investigations into suspected wrongdoing inevitably raises issues in multiple jurisdictions. As a result, enforcement

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<sup>38</sup> In keeping with this objective, when benchmarking best practices in enforcement, the BCSC and OSC focused on the SEC and FSA.

by one regulator provides benefits to constituents in other jurisdictions (and, accordingly, regulators of other jurisdictions). But the regulator engaged in the enforcement incurs all the cost from such effort, without necessarily accruing all of the benefits. This may result in fewer resources dedicated to enforcement than would be optimal from the perspective of the national interest.<sup>39</sup> Alternatively, there may be pressure to be seen to be “doing something” in the face of particular high-profile cases, such that several jurisdictions wish to play a role. Where enforcement is then carved into components that allow several commissions to play a role, this may result in higher enforcement costs to regulators and private parties. It may also mean more resources are dedicated to enforcement than is optimal from the standpoint of a national regulator.<sup>40</sup> Finally, there may be conflicting interests between jurisdictions if, for example, most of the affected investors reside in one jurisdiction, but a powerful corporate interest resides in another jurisdiction. The commission with the resident corporate interest and no affected investors is unlikely to find the public interest of its province is affected similarly to that of the jurisdiction with the affected investors. The identity of the jurisdiction leading the enforcement action may determine the outcome – again this may be more or less enforcement than would be optimal from a national interest perspective.

Thus, well coordinating commissions under the current structure may produce an outcome that differs very little from that which a national regulator would achieve. To determine if this is the case, in this section we examine the data available on overlap and cooperation among commissions and SROs. We also consider the qualitative evidence offered by market participants – both directors of enforcement at commissions and securities litigators who deal with the commissions and SROs – on the extent to which there is duplication or added cost related to the multiplicity of regulators.

**(a) *Data Available on Referrals, and Concurrent and Joint Investigations***

There are few instances of reported parallel or concurrent formal proceedings by several commissions. The BCSC reports that the number of concurrent investigations by commissions is less than 5% of total enforcement cases (no data is provided in support of this statement). The Saskatchewan Securities Commission reports only 1% of investigations are concurrent with another regulator.<sup>41</sup> The number of concurrent investigations between RS and a commission is slightly higher than 1% for investigations handled by RS’ Toronto office, but lower for RS’ Vancouver office. Table 16 below shows the percent of RS investigations that were concurrent with various commissions and the IDA. Almost 7% of its Toronto office investigations were concurrent with the OSC. RS claims that there was significant cooperation between regulators when conducting these investigations. Investigative work is normally divided up among regulators. RS is typically the lead investigator when the case involves RS subject matter. For example, RS would take the lead in a market manipulation case while the IDA would take the lead in a conduct of accounts case.

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<sup>39</sup> This is an example of a potential *positive* externality that leads to regulatory failure (i.e. regulation that fails to achieve a first-best level).

<sup>40</sup> This is an example of a potential *negative* externality that leads to regulatory failure.

<sup>41</sup> However, PEI reported that it has had numerous investigations with multiple regulators, though does not refer to these as concurrent.

**Table 16: Concurrent RS Investigations as a Percentage of Total RS Investigations Opened (1998-2002 Average)**

<b>Concurrent with</b>	<b>RS Toronto</b>	<b>RS Vancouver</b>
OSC	6.8%	0.0%
ASC	0.7%	0.0%
BCSC	0%	0.2%
NSSC	0.7%	0.0%
CVMQ	0%	0.0%
IDA	2.0%	0.0%

Flowing from the limited instances of parallel independent proceedings, generally commissions reported no cases of jurisdictional conflict. Similarly, RS did not have any examples of jurisdictional conflict with the IDA or commissions. We are aware of one example of jurisdictional conflict between provincial regulators.

The lack of jurisdictional conflict is the result of considerable coordination and communication efforts undertaken by the commissions and SROs. For example, the BCSC reports that it meets monthly with representatives from the IDA, the TSX Venture Exchange, and RS. It also meets quarterly with representatives from the Vancouver Police Department, the RCMP, and Industry Canada. In addition, monthly conference calls and twice-yearly meetings are held with the enforcement divisions of the securities commissions in Canada to discuss matters of interest. Similarly, RS engages in considerable communication with commissions and the IDA. In the case of the IDA, the information exchange is extensive as the enforcement arms of RS and the IDA share information about investigations by inputting details into the IRIS database. With the commissions, RS provides a monthly report to its recognizing commissions (i.e. ASC, BCSC, MSC, OSC, CVMQ) describing all investigations and prosecutions that have been opened and closed. Further to the communications between RS and the commissions, two organizations were created to share information, the Securities and Enforcement Review Committee in Ontario and the Joint Securities Enforcement Review Committee in Alberta. These organizations serve the purpose of determining when a joint investigation into a matter would be warranted. Members hold meetings every two months to discuss those cases where joint investigations would be appropriate. RS recommends this type of organization should be in place in all major securities markets in Canada with relevant information shared nationally. Quite apart from these formal settings, information is also shared on a case-by-case basis, as requests or referrals are made between commissions and SROs.

As noted earlier, it is inevitable that certain securities investigations, particularly the larger or higher-profile investigations, will touch upon several commissions' jurisdictions. In such cases, the regulators may defer or refer the matter to another regulator,<sup>43</sup> or alternatively they may compartmentalize the investigation into components that are addressed by different regulators. When dividing a higher-profile case between regulators, it is typical for a lead regulator to cover the majority of issues. The regulators determine amongst themselves who will act as the lead. Lead regulators are presumably chosen on the basis of some combination of jurisdiction, where the effects are greatest, internal expertise and likelihood of success. Joint investigation will be pursued when specialized skills of both regulators are required.

We present the data we have from commissions on their investigation referrals in Table 17 below. The number of referrals by any of the commissions is not insignificant (for instance, the Nova Scotia Securities Commission only had 81 investigations in 2002). While no precise counts were provided, the Saskatchewan Securities Commission reported that about 25% of its investigations are referred to an SRO. While most of the Nova Scotia Securities Commission files were referred to the IDA, the OSC referred only one file to the IDA in 2002. Most of the OSC referrals were to other commissions.

**Table 17: Referral Activity by Commissions in Fiscal Year 2002**

To	From		
	OSC	NSSC	BCSC
Another Commission	21	0	—
IDA	1	22	—
MFDA	0	4	—
RS	0	20	—
Other	9	0	—
Total Referrals	31	28	66

RS also refers a significant number of files to commissions and the IDA. Table 18 below shows the number of RS referrals by office. In particular, referrals by the RS Toronto office to the IDA and OSC are often a large fraction of the total files opened. There also is considerable variation in the number of referrals from year to year.

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<sup>43</sup> When referring matters to SROs, the commissions may reserve the right to take action in the event that the SRO's ruling is believed to be insufficient or against the best interests of the public. This is the stated policy of the Nova Scotia Securities Commission for example.

**Table 18: Cases Forwarded By RS**

Year	RS Vancouver		RS Toronto	
	Files Opened	Forwarded to ASC/BCSC/IDA	Files Opened	Forwarded to OSC/IDA
1998	131	16	42	23
1999	128	3	31	18
2000	86	14	22	12
2001	81	19	24	4
2002	26	15	27	3

**(b) *Security Litigators' Perspective***

There is universal agreement among the securities litigators to whom we spoke<sup>44</sup> that the commissions have made great strides in cooperating more fully than was past practice. As noted above, there are no longer parallel proceedings launched by commissions in respect of the same conduct. Such conduct did little to improve enforcement, only provoking ill will between the commissions as they competed amongst each other. Respondents in such cases found it very difficult to coordinate the various actions, adding to the time and expense of resolving the multiple commissions' concerns.

The solution, as described above, has been a combination of either joint investigations, appointment of a lead regulator, or partitioning of the investigation into non-overlapping components. While all of these options are better than parallel, independent proceedings, each generates its own problems from the perspective of counsel.

Joint investigations (and joint hearings) are employed when there are significant interests of several commissions and no obvious lead regulator. Joint hearings can entail scheduling and other logistics problems that increase the time taken for the investigation and hearing. Beyond the difficulties of scheduling, there may be differing procedures before different commissions. Agreement must be established as to the procedures and processes to be followed. Often these are done on a case-by-case basis. Added time inevitably adds complexity and cost to the proceeding that could be avoided if there was only one regulator.

Appointment of a lead regulator avoids the logistical problems of joint hearings. However, appointment of a lead regulator does not necessarily mean there is only one regulator involved or relevant. Below we describe two situations where appointment of a lead regulator is not equivalent to dealing with a single regulator.

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<sup>44</sup> We interviewed senior securities counsel at the following firms: Blake Cassels & Graydon, Borden Ladner Gervais, Fasken Martineau, Groia & Company, McCarthy Tetrault, Ogilvy Renault, Torys, and Weir & Foulds.

First, the lead regulator may be meeting with other regulators as its investigation proceeds. In situations involving settlement discussions, counsel described cases they had been involved with where the lead regulator was regularly consulting other commissions as to the terms of the settlement under discussion. When other commissions had comments or changes they wanted, these were brought to the attention of counsel by the lead regulator. In this fashion, the settlement terms were revisited several times. The process took much longer (and hence was more costly to, and involved greater uncertainty for, the client) than would have been the case if there had been only one regulator with whom settlement discussions were being conducted.

Second, in cases where there are not ongoing discussions with other regulators during the settlement, the respondent may have little assurance that other commissions will accept the settlement negotiated with the lead regulator. If the other potentially interested commissions do not involve themselves in the lead regulator's settlement discussions, the respondent may find that additional settlement terms may be sought later by another commission. In light of this possibility (which is not regarded by counsel as remote), counsel advising clients alter their strategy and conduct in anticipation of having multiple regulators involved. Thus, even if multiple regulators are not ultimately involved, the possibility of such action has affected the process in a manner that adds time and cost for clients relative to a world where only one regulator is dealt with.

A final point in respect of lead regulators: some counsel noted situations where they are acting for a party who is attempting to initiate enforcement action. Several regulators may be approached given the potential for each to have an interest in the investigation. Where the case is not a flagrant violation, or it is more complicated or difficult, regulators may be reluctant to take the lead. Counsel can expend considerable time and effort meeting and discussing the case with several regulators, at added cost to the client. Such costs would be avoided under a system of a single regulator.

Finally, cases may be partitioned into components that involve several regulators, including commissions and SROs. Several cases are useful as an illustration of this practice. In the case of Cartaway,<sup>45</sup> investigations were launched by the TSE, VSE, ASE, BCSC and ASC. The OSC did not launch its own investigation but oversaw the TSE. Settlements were eventually reached with the TSE that covered the main issues under investigation. The settlement with the ASC also dealt with the issues raised by the Alberta Exchange, but dealt only with trade tickets. Settlement with the BCSC included settling the Vancouver exchange investigation. From counsel's perspective the trade ticket issues could have been subsumed into the TSE investigation and settlement. As well, the settlement with the BCSC was regarded as largely similar to that negotiated with the TSE, raising questions as to why it needed to be pursued separately.

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<sup>45</sup> British Columbia Securities Commission COR#01/064 in the Matter of the Securities Act R.S.B.C. 1996, c. 418 and in the Matter of Cartaway Resources Corporation and in the Matter of Robert Arthur Hartvikson and Blayne Barry Johnson, Decision, June 7, 2001.

In the Yorkton case,<sup>46</sup> investigations were launched by the TSE, OSC, Canadian Venture Exchange and BCSC. Settlement was reached with the TSE and Venture Exchange jointly. As after the TSE settlement. Ultimately, the BCSC allowed the OSC to lead, and did not require an additional settlement.

In both cases, the settlements involved financial penalties and payment of the various regulators' costs. This is not unusual. We would expect that while great effort may be taken to avoid duplication between the regulators, there is likely to be some time and effort spent by each regulator on background issues that are common across the various investigations. To the extent that the costs for these exercises are recovered from the parties, the respondent has paid for these efforts multiple times. As well, the respondent's counsel may have attended multiple meetings with various regulators covering similar or related issues. The respondent will then be paying legal fees and disbursements multiple times. A single regulator would avoid these costs.

Our discussions with counsel also raised questions as to the effectiveness of remedies under the current system. For example, in the insider trading case launched against former British Columbia premier Bill Bennett, the case evolved in the following manner. Bennett was acquitted of insider trading by the British Columbia courts. Subsequent proceedings launched by the BCSC resulted in Bennett having his trading rights revoked in British Columbia. As the OSC never launched any action against Bennett, the revocation of his trading rights in British Columbia does not constrain his trading in Ontario where the exchanges are located. In such a case, one might argue that the BCSC remedy is ineffectual because it is not national. Alternatively, if the OSC is correct and there was no reason to revoke Bennett's trading rights, the BCSC hearing should never have been launched following the acquittal decision. Under either scenario, the multiplicity of regulators resulted in sub-optimal enforcement relative to a single regulator.

Securities counsel also discussed the potential overlap between a single commission and SROs. Most of the counsel to whom we spoke had cases involving the OSC and one or both of the IDA and RS. In cases involving the OSC and RS, counsel felt there was little overlap and little unwieldiness in the process caused by dealing with the different enforcement silos. RS' independence was noted as a good model generally.

The model most frequently cited by securities litigators to resolve the problems noted above is one of a national regulator with branch offices. Multiple branch offices would incorporate regional interests and allow for local enforcement. Such a model would remove the costs currently incurred by regulators and respondents related to logistical complications from

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<sup>46</sup> In the Matter of the Securities Act R.S.O. 1990, c. S.5, as Amended and in the Matter of Yorkton Securities Inc., Settlement Agreement, December 19, 2001. See also In the Matter of the Securities Act R.S.B.C. 1996, c. 418 and in the Matter of Canadian Venture Exchange Inc. and in the Matter of Yorkton Securities Inc., Decision, March 6, 2001.

joint investigations and hearings, and from the duplication arising in partitioning investigations into components. It would also resolve the problems noted above when the lead regulator is not the only regulator involved in reality or perception. This model is believed to be one that engenders greater flexibility, effectiveness, and timeliness. As well, it is more economical for regulators, intermediaries and issuers compared to the current system of multiplicity. In the next section, we estimate the cost savings available from a move to this model.

#### **4. Economies of Scale in Enforcement**

As markets get larger, we expect there to be a need for increased enforcement activity as discussed earlier. If the need for additional enforcement resources is less than a 1:1 relationship with increases in the market size, economies of scale in enforcement exist.<sup>47</sup> We might expect the main source of such economies of scale, should they exist, to be spreading fixed costs over a larger number of investigations. Thus, a potential benefit that may be had from more centralized enforcement is savings from exploiting economies of scale in enforcement. In other research, we have found substantial potential savings available to Canada should it move to a single national regulator with multiple branch offices. In 2002, the savings would have been at least 30% of the combined 2002 operating budgets of the 13 commissions.<sup>48</sup>

We expect to find economies of scale in securities regulation extend to enforcement; that is, the fixed costs of enforcement can be spread over a larger number of investigations under a more centralized model.<sup>49</sup> Furthermore, the regulator may be better placed to add specialized staff (and have such specialized staff be more effective by improving their critical mass) compared to the individual commissions today.

At the same time, the extent of economies of scale may be tempered by the nature of enforcement activity. Enforcement involves investigators and litigators pursuing individual cases. It is unlikely that these investigators and litigators would individually be able to process more cases as the jurisdiction becomes larger. In other words, fixed costs, while present, may be a relatively small share of total enforcement costs compared with other aspects of regulation such as policy-making.

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<sup>47</sup> Economies of scale in regulation are the reductions in per unit costs that come about as the market under regulation becomes larger.

<sup>48</sup> CRA, "Estimating the Incremental Costs of Multiple Securities Regulators in Canada," (2003), a report prepared for the Investment Dealers Association of Canada.

<sup>49</sup> For example, both the OSC and BCSC jointly commissioned a study by AssetRisk on best practices in enforcement. The Market Integrity Computer Analysis System (MICA) has been jointly developed by the commissions to enhance their ability to detect suspect trading practices.

To calculate economies of scale we build on our earlier work for the IDA.<sup>50</sup> In particular, we estimate the relationship between the costs of enforcement and market size. We collected data on the enforcement budgets of regulators as a measure of enforcement costs and GDP for the corresponding jurisdictions as a measure of market size.<sup>51 52</sup> We then measure the rate at which enforcement budgets increase with increases in market size. The relationship between increases in market size and increases in enforcement budgets allows us to determine the required enforcement budget for a revised regulator structure and hence the potential savings relative to the status quo.

We extend our analysis to non-enforcement activities as well. Since we have data on total budgets for states and provinces, we know the total regulatory budget spent on non-enforcement activities. We calculate cost savings of centralization for both enforcement and non-enforcement activities. The sum of the imputed savings is the total potential savings from centralization. In our analysis for the IDA, we computed this *total* savings directly. As we discuss below, the two different estimates are very similar.

In addition to the Canadian data, we collected data on enforcement budgets of some U.S. states and the SEC. This additional data is valuable in expanding the sample size, which allows for more accurate estimation. A small sample size results in less accurate estimates. As well, there are important differences between large and small regulators in Canada, which would further reduce the accuracy of any estimation performed using Canadian data only. Of course there are also differences between the enforcement roles of Canadian provincial regulators and their U.S. state counterparts. In the United States, the SEC is the primary overseer and regulator of the U.S. securities markets, while the state regulators focus mostly on those who sell securities within their jurisdiction. In Canada, any one provincial regulator may assume both roles. As a result, estimated economies of scale for U.S. states may differ from those in Canada. However, as indicated above (see Figure 6) smaller Canadian commissions and U.S. state regulators are more comparable in the context of regulatory budget relative to GDP compared to the differences that exist between larger and smaller commissions in Canada.

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<sup>50</sup> *Supra* note 48.

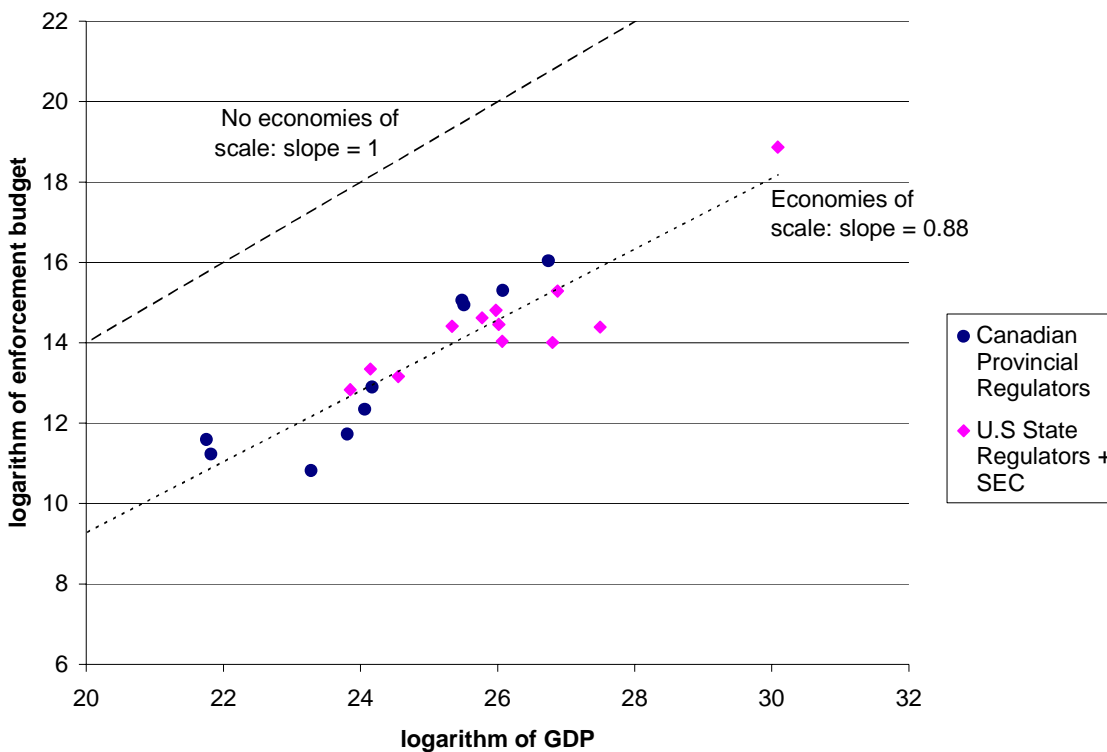
<sup>51</sup> The enforcement budgets for some commissions were unavailable so we used the ratio of employees in enforcement relative to total employees to determine the share of total budget allocated to enforcement. For jurisdictions where we had both employees and budget information for enforcement and non-enforcement activities, the ratio of enforcement employees to total employees is generally very similar to the ratio of enforcement budget over total budget, as noted above in Table 3.

<sup>52</sup> We chose GDP as a measure of market size rather than population because it better explained the variation in enforcement activity. Alternative measures of market size are discussed in the section on sensitivity tests.

(a) *Graphical Analysis*

Below Figure 12 plots budget size against GDP (in logarithms).<sup>53</sup> We distinguish the data that are related to Canada and those which are related to the U.S. An upward trend (the line running through the data) is evident from the data, indicating that operating budgets increase with GDP as we expect. The relationship between regulatory budgets and GDP is less than one-to-one for the data combined. That is, visual inspection of the data suggests that increasing GDP by 1% does not lead to a 1% increase in operating budgets, indicating that economies of scale exist.

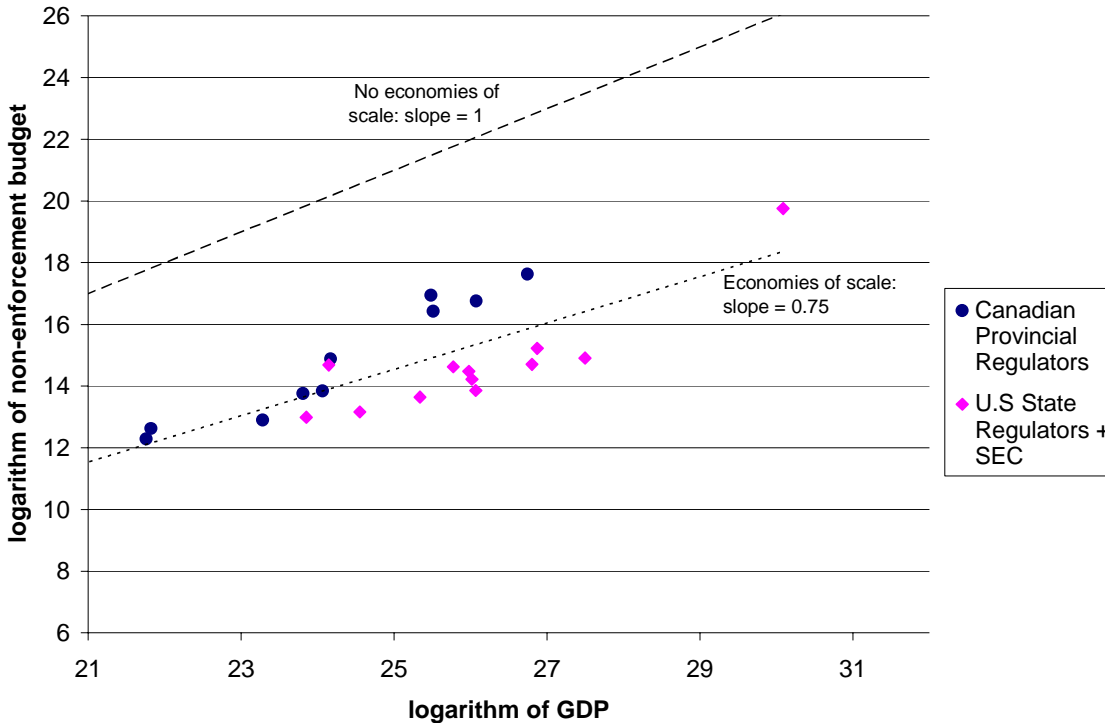
**Figure 12: 2002 Enforcement Budgets and GDP by Jurisdiction**



<sup>53</sup> The natural logarithm is a mathematical transformation that is commonly used to estimate economies of scale. A straight line through data in logarithms implies that the percentage change in cost for a small percentage change in market size is constant regardless of how large the market is. It is a good first-order approximation. Our ability to estimate a specification that is more flexible is limited by the small sample of data.

Figure 13 below shows a similar plot of non-enforcement budget against GDP. Relative to Figure 12, the larger regulators lie considerably above the trend line. This likely reflects the fact that the existence of the SEC reduces the regulatory capacity required of state regulators, and smaller provincial and territorial regulators in Canada are able to defer some regulatory policy issues to the larger Canadian commissions.<sup>54</sup>

**Figure 13: 2002 Non-enforcement Budgets and GDP by Jurisdiction**



The second important difference between the figures is that the trend line in Figure 12 is steeper than that trend line in Figure 13. The implication of this is that economies of scale are less in enforcement than in other areas of regulation, likely for the reasons mentioned above. We examine these differences more carefully using regression analysis.

<sup>54</sup> Our previous research for the IDA provides evidence for this explanation. We showed that when other countries were included in the analysis, the trend line for overall economies of scale for the larger provinces was much closer to that for other countries than for the territories, smaller provinces and states.

**(b) *Regression Estimates of Economies of Scale***

Since labour costs are a large component of total enforcement costs, differences in salaries between regions due to differences in costs of living may affect total labour costs. The graphical analysis does not control for differences between jurisdictions in cost of living. We hold constant this effect by using regression analysis.<sup>55</sup> The regression essentially separates the effects of cost of living and market size in explaining the size of the budget. Separate regressions are done for enforcement and non-enforcement budgets. We take the natural logarithm of the variables as we did in the graphs so that the relationships are all measured as percent changes over percent changes. Thus, the estimated coefficient from the regression on, for example, GDP, provides an estimate of the percentage change in enforcement budget associated with a percentage change in GDP.

To account for the additional costs imposed on the primary jurisdictions we add a term that allows the regression line to shift, referred to as a dummy variable. This allows for the possibility that even after controlling for market size and the cost of living, primary regulators may have higher costs. This is somewhat different from the model specification we used in our earlier analysis for the IDA. There we accounted for the higher costs for the primary Canadian jurisdictions (and country regulators) by allowing the slope of the regression line to differ between large and small regulators. Below we discuss how the different specifications affect the results. The details of our regression analysis are reported in Appendix 1.

Our results indicate that for every 1% increase in GDP, the enforcement budget would increase by 0.57% and the non-enforcement budget would increase by 0.44%.<sup>56</sup> Thus, for example, if the regulators of the Atlantic provinces were combined into a single regulator (equivalent to tripling the size of New Brunswick) they would save 29% in enforcement costs and 58% in non-enforcement costs.

**(c) *Estimates of Potential Cost Savings from Consolidation***

We use the regression results to estimate potential savings from consolidation. We construct a benchmark for reorganization by assuming that there is a single regulator with its head office in Ontario and five branch offices. The branch offices are assumed to be in Alberta (responsible for the territories), British Columbia, Manitoba (responsible for both Manitoba and Saskatchewan), Nova Scotia (responsible for all of Atlantic Canada) and Quebec.

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<sup>55</sup> We include a measure of the cost of living in the regression analysis so that we measure the relationship between cost and market size that would exist if the cost of living were the same in all regions. We take into account the regional variation in the cost of living in determining the costs of branch offices and the central office.

<sup>56</sup> These estimates are lower than the ones we obtained for overall economies of scale for the IDA study. We use a slightly different specification here by including a dummy variable for the large provinces rather than including a separate slope variable (i.e. interaction of the large Canadian regulator dummy with log GDP) for larger provinces. The former fits the data better when the data are broken down into enforcement and non-enforcement components. The overall effect is to generate a somewhat larger estimate of the economies of scale savings.

Below, Table 19 provides the current estimates of enforcement budgets for Canadian commissions, the estimated enforcement budgets under the new regime using the economies of scale estimate discussed above, and the difference in these figures, which is the cost savings. The estimated enforcement budgets under the new regime are derived using the economies of scale estimates. The economies of scale estimate provides the enforcement budget required for any given jurisdiction's GDP.

**Table 19: Estimated Annual Cost Savings in Enforcement from Consolidating Regulators (\$ millions)**

	<b>Actual</b>	<b>New Regime</b>	<b>Savings</b>
All of Canada	21.3		1.8
Ontario Head Office		15.3	
Alberta Branch		0.6	
British Columbia Branch		1.2	
Manitoba Branch		0.4	
Nova Scotia Branch		0.3	
Quebec Branch		1.6	

The branch office budgets are based upon the estimated fixed difference in costs between the larger and smaller jurisdictions (see the Appendix).<sup>57</sup> The \$1.8 million annual savings is 8.6% of the 2002 enforcement operating budgets for all Canadian provincial and territorial securities commissions.

Table 20 below provides the cost savings in all other areas of regulation from a model of a central regulator with branch offices.

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<sup>57</sup> Our estimate of the allocation of resources between the central office and branch offices is derived from the implied differences between the larger and smaller commissions. Of course, in any actual implementation of the central regulator model the allocation may be different. In particular, the more resources that are allocated to branch offices away from the central office the lower the economies of scale benefit.

**Table 20: Estimated Annual Cost Savings in Non-enforcement from Consolidating Regulators (\$ millions)**

	<b>Actual</b>	<b>New Regime</b>	<b>Savings</b>
All of Canada	106.5		44.8
Ontario Head Office		54.9	
Alberta Branch		1.4	
British Columbia Branch		1.6	
Manitoba Branch		1.0	
Nova Scotia Branch		0.9	
Quebec Branch		2.0	

The \$44.8 million annual savings represents 42.1% of the 2002 non-enforcement operating budgets for all Canadian provincial and territorial securities commissions. The combined savings are \$46.7 million or 36.5% of the total 2002 operating budgets.

Our IDA estimates of savings were about 30%.<sup>58</sup> The difference is partially due to separating the data into enforcement and non-enforcement components and partially due to a different specification and different data. For example, if we apply the larger sample of states that we have here to our earlier analysis for the IDA, we obtain savings of \$48 million, which is 37.5% of current cost levels. It is not surprising with statistical analysis to see this amount of variation in the estimates. We conduct some additional sensitivity tests below.

A consolidated regulator would have a greater share of expenditures on enforcement because economies of scale are lower in enforcement than in non-enforcement. Currently about 17% of the operating budget is directed toward enforcement. For the head office of a national regulator this would increase to 22% and for the branch offices the shares would range from 25% to 45%.

**(d) *Policy Implications of Smaller Economies of Scale in Enforcement***

The fact that we find the percentage savings in enforcement expenditures on the order of a quarter of those in non-enforcement expenditures is important for policy. It suggests that one main argument for centralizing regulation – savings from greater efficiencies – is less important for enforcement. As such, a model that is able to retain the efficiency benefits from centralizing other regulatory activities but maintains decentralized enforcement is desirable.

<sup>58</sup> If total savings were closer to 30%, but the ratio of enforcement to non-enforcement savings remained the same, the savings in enforcement would be \$1.9 million (9%) and in non-enforcement would be \$37.8 million (36%).

(e) *Sensitivity Tests*

While we have provided our best estimates of potential savings above it is useful to test the robustness of these estimates. There are several sources of possible uncertainty. First, the form of the specification may affect the results. For instance, in our IDA analysis we allowed for a separate relationship between market size and budgets for the large Canadian jurisdictions and countries. Second, sampling variation can lead to different results so that the same specification will yield different results when applied to a different data set. Third, assumptions about the variable used to measure market size may affect results.<sup>59</sup> Fourth, the number of branch offices will change the cost savings estimate.

Table 21 below provides the estimated cost savings for several cases. For each case we provide an upper and lower bound estimate of the cost savings. This bound represents the 95% confidence interval. That is, we can be 95% confident that the true cost savings lie within the confidence interval.<sup>60</sup> There is a considerable range of estimates for each case, which simply reflects the level of accuracy available in the data.

Case 1 shows the original IDA savings estimate (no confidence interval was computed for that analysis). Expanding the original IDA sample with additional data for other states increases the point estimate to nearly the same level we obtained with the enforcement data set. Excluding states with imputed budgets (case 2) has little effect on the estimated savings though the confidence interval increases.<sup>61</sup> Case 3 adds an additional indicator (or dummy) variable for the large jurisdictions.<sup>62</sup> The estimated cost savings fall somewhat to \$42.1 million. In the IDA analysis we also controlled for two outliers (Sweden and New Zealand). The savings increase considerably if we do not control for these countries. Finally, if we drop the Manitoba office, there is a small increase in cost savings from \$48.2 million to \$49.4 million.

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<sup>59</sup> Ideally we would like to measure market size by reference to market capitalization; however, data on market capitalization do not exist at the province or state level. We have considered an alternative measure of market size based on population, but find that GDP provides a better measure of variation in budget compared to population – it “fits” the data better than population. Nevertheless, if we use population rather than GDP as a measure of market size the estimated savings are similar.

<sup>60</sup> Because of sampling variation the estimates will never be precisely exact. If we had many different samples, the estimated savings from these would most of the time (95% of the time) lie within the interval. Note that the best estimate does not lie quite in the middle of the range due to the effect of converting logarithms back to levels.

<sup>61</sup> For those familiar with statistical analysis, we note that we did not take into account the fact that the imputed variables are estimates when calculating our standard errors. Thus, the confidence intervals (except for case 3) are somewhat understated.

<sup>62</sup> In more technical terms, the original IDA analysis included a different slope but not a different intercept term for the large jurisdictions.

**Table 21: Sensitivity Tests of Economies of Scale Cost Savings**

	<b>Case</b>	<b>Cost Savings</b>	<b>Upper Bound</b>	<b>Lower Bound</b>
1	Original IDA	\$40.1 million		
2	New Base with Additional States and Imputed Budgets	\$48.2 million	\$65.0 million	\$26.9 million
3	Exclude States with Imputed Budgets	\$43.1 million	\$64.2 million	\$14.8 million
4	Additional Dummy Variable for Large Jurisdictions	\$30.0 million	\$48.1 million	\$6.9 million
5	No Control for Outliers*	\$35.6 million	\$51.1 million	\$15.4 million
6	No Manitoba Office	\$49.4 million	\$66.1 million	\$28.2 million

\* New Zealand and Sweden were considered as outliers in the original IDA analysis

Taken together, the sensitivity results indicate that the overall conclusion of substantial cost savings is robust. Nevertheless, there is uncertainty in the precise amount of cost savings.

## Appendix

### Regression Estimates of Economies of Scale

We employ regression techniques in order to control for cost of living effects in the estimation of economies of scale in securities commission enforcement. We use a log-linear regression specification with the log of enforcement budget and log of non-enforcement budget as dependent variables.<sup>63</sup> In this way, the coefficient estimates of the variables of interest may be interpreted as elasticities. In essence, we are estimating the percentage increase in enforcement costs for one percent increase in the market size. In this case, an elasticity of less than one indicates that for a doubling of the size of the market under regulation, the cost of enforcement would increase by less than double; i.e. there are economies of scale.

Table A1 below reports the regression results. The adjusted R<sup>2</sup> of 0.93 indicates that much of the variation in enforcement budgets is explained by the regression model. The cost of living coefficient is positive, as expected, but is not measured very accurately as indicated by the large confidence interval. (The 95% confidence interval essentially means that there is a 95% likelihood that the true value lies within the interval, assuming the model is correctly specified.) The coefficient on GDP is less than one, indicating economies of scale. The estimate is quite precise and even at the upper bound of the 95% confidence interval the elasticity estimate is below 1.

**Table A1: Regression Results  
(Logarithm of Security Regulators' Enforcement Budgets)**

Coefficient	Estimate	Standard Error	95% Confidence Interval	
GDP (in logs)	0.57	0.09	0.39	0.76
Large Securities Regulator Dummy	1.17	0.28	0.57	1.76
Cost of Living (in logs)	2.4	0.81	0.72	4.12
Constant	-28.1	7.74	-44.4	-11.8
Adjusted R <sup>2</sup>	0.93			
Observations	22			

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<sup>63</sup>  $\text{Log}(\text{Securities Regulators' Enforcement Budgets}) = \alpha + \beta_1 \times \text{Log}(\text{GDP}) + \beta_2 \times \text{Large Security Regulator} + \beta_3 \times \text{Log}(\text{Cost of Living}) + \mu$

$\text{Log}(\text{Securities Regulators' Non-Enforcement Budgets}) = \alpha + \beta_1 \times \text{Log}(\text{GDP}) + \beta_2 \times \text{Large Security Regulator} + \beta_3 \times \text{Log}(\text{Cost of Living}) + \mu$

Table A2 below reports the results of the regression with securities regulators' non-enforcement budgets as the dependent variable. The overall fit of the equation continues to be good, as in the earlier regression, with the adjusted  $R^2$  equal to 0.91 and the GDP and Large Security Regulator Dummy coefficients are both statistically significant (i.e. the 95% confidence interval does not include zero).<sup>64</sup>

**Table A2: Regression Results  
(Logarithm of Security Regulators Non-Enforcement Budgets)**

<b>Coefficient</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>95% Confidence Interval</b>	
GDP (in logs)	0.44	0.099	0.23	0.64
Large Securities Regulator Dummy	2.59	0.32	1.93	3.25
Cost of Living (in logs)	0.64	0.90	-1.26	2.54
Constant	-4.1	8.7	-22.3	14.1
Adjusted $R^2$	0.91			
Observations	22			

These regression estimates allow us to infer what the cost savings in enforcement and non-enforcement would be if Canada moved to a system of one single regulator with branch offices in Alberta, British Columbia, Nova Scotia, Quebec and a head office located in Ontario. We impute cost savings by determining what the securities regulators' predicted cost would be if they were consolidated into one national regulator with branch offices in the above-mentioned locations.

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<sup>64</sup> Recall that the 95% confidence interval indicates the range of values within which we are 95% confident the true value of the estimated variable lies. Should the 95% confidence interval include the value of zero, then we cannot reject the "null hypothesis" that changes in, for example, the cost of living has no effect on the costs of enforcement.