Uncertainty Resolution Under Extreme Information Asymmetry: The Case Of Alberta's Private Equity Markets

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Abstract

This study develops and tests a model of how private equity market investors mitigate risk. We find evidence that changes in securities regulation increase the pool of private equity capital. We also identify a previously overlooked category of private equity investors that are neither angels nor venture capitalists and demonstrate that they play a significant role in this market.

Introduction

Investments in private equity are characterized by a high degree of market risk and a very high degree of information asymmetry. Market risk, as discussed by Fiet (1995) and Wright and Robbie (1998), is comprised of a broad class of uncertainties: whether the firm possesses the technological capability to develop viable products, future customer demand for the firm's products, the rate of customer adoption of the firm's products, and the nature of actual and potential competition.

When this market risk is combined with information asymmetry, investors have deep concerns about committing funds. Information asymmetry has two dimensions: adverse selection and moral hazard. In the context of raising capital, adverse selection occurs because entrepreneurs have better information about the firm's prospects than outside investors (Sood (2003)). An entrepreneur with strong prospects is less likely to seek external capital if it dilutes their ownership position. In equilibrium, poor quality firms will be overrepresented in the private equity marketplace. Moral hazard, as discussed by Jensen and Meckling (1976) and Sood (2003), involves the chance that the entrepreneur will engage in actions that are detrimental to the investors. Examples include: withholding negative information about the firm, investing in negative net present value projects, avoiding risk that would be otherwise desirable to an investor with a diversified portfolio, shirking, avoiding effort, or entrenching their position within the firm. Taken together, the adverse selection and the moral hazard problems create agency risk in raising capital.

Access to equity markets is rationed or severely limited as a result of the extreme information asymmetry between investors and managers of small, privately held firms. Investment by wealthy individuals appears to bridge the gap between the demand and supply of equity capital in this context, While there is a growing literature on this kind of investment in high-risk start-ups ("angel investment"), there is little research on how these investors mitigate the risk inherent in these situations. The high agency costs in this context result from a problem that is more complicated than the standard difficulties in observing and monitoring an agent. The central issue in these higher risk transactions is the investor's inability to evaluate the agent's decisions with respect to the use of capital because of the high degree of uncertainty. As a result, the investor must design an investment strategy that allows for ongoing monitoring and evaluation.

Our paper begins with the development of a theoretical model for private equity investment that provides explicit recognition of the resolution of informational asymmetry. This model is then tested using empirical observations of private (exempt) market investments gathered from the securities regulator in the Canadian province of Alberta. The Alberta Securities Commission (ASC) has implemented major changes to the regulatory regime for exempt investment in recent years, and this has provided a unique opportunity to test our model. Our study finds

that the removal of statutory restrictions on the magnitude of exempt equity investments had a significant impact on investor strategies in this market. As the ASC revised the requirements for exempt filings, not only did larger numbers of investors come to the market, but also the nature of investment strategies changed. This study also identifies a previously overlooked category of private equity market investors who are neither angels nor venture capitalists. Our research demonstrates that these investors play a significant role in the private equity market.

A Model of Private Equity Market Investor Behaviour

The private equity marketplace is large and dynamic and is comprised of many different types of investors. We may characterize these investors as either formal investors, such as institutional venture capital (VC) or informal investors, wealthy individuals who are investing their own capital. It is widely recognized that formal VC funds specialize in investing in situations with high information asymmetry. Venture capital investing has received increasing attention in finance and economic research over the past decade. (For a review of this literature, see Wright & Robbie (1998)). Only recently has attention turned to the role of informal - also called 'angel' – investors, and this role is still less well understood. One result that is broadly consistent is that these investors tend to be involved in earlier stage start-ups. There is growing interest in the academic literature to understand the role of informal investors, particularly as it has presented new opportunities and challenges for capital market regulators.

While the economic theory of agency as in Jensen & Meckling (1976) is well developed, its application in the context of start-up ventures deserves greater attention, as Jensen (1993) acknowledges. In particular, the standard principal agent models that derive from early agency work do not adequately describe investments in start-up firms that do not yet have significant cash flows. And although there is a growing awareness of this lack, there remain significant gaps in the development of the theory. Hart & Moore (1990) introduce a "control rights" model that is flexible enough to begin to include these new requirements, and work by Aghion & Tirole (1994) has adapted the model more closely to the needs of innovative firms. Lerner & Merges (1998) apply the Aghion & Tirole framework to an empirical study of control rights in biotechnology alliances. We think awareness of trading these control rights improves an understanding of this market for private equity capital.

Control rights play an important role in financial contracting. The Aghion & Tirole model considers the interaction of 3 parties: a research unit, a customer for the research output, and an investor. The specific rights considered include a) property rights contingent on the nature of the innovation (e.g. innovation output directly related to the research units parent), (b) trailer clauses (e.g. follow-on innovation), and (c) shop rights (e.g. exclusive distribution, licensing). While this model can be interpreted quite generally, our interest is merely to point out that specific control rights will vary considerably by investment, and that this will affect investment patterns. Examples include: the type of innovation, the stage in the life cycle of the firm and industry, and the investor's experience.

Thus, there a growing literature on the refinements needed for broader application of agency problems in technology and innovation. And although this literature is contributing to our understanding of the issues of investing in this context, much more work needs to be done. Current theory treats early stage investors homogeneously, and pays limited attention to the fine differences in control rights. As a result, research on early-stage investments requires more careful analysis of the sources and applications of capital investment. The empirical work in this paper examines the investor side, but we acknowledge that future work should address demand-side issues as well.

Amis & Stevenson (2001) recommend that those interested in investing as "angels" should diversify their holdings. There are two somewhat competing rationales for this recommendation. The first reason, the standard financial rationale for diversification, is the advantage of a diversified over a non-diversified portfolio. The second reason is less well understood: so-called 'virgin angel' investors who lack expertise must engage in investment in order to initiate a learning process that only comes through participation in several transactions. To the extent that learning occurs better in related markets, investors face a conflict between learning, which reduces agency risks, and diversification, which reduces market risk. This means that the attractiveness of the investment opportunity will vary by the investor type. A 'virgin angel' will be looking to gain experience and has an incentive to invest in a deal purely for the experience value. Such an investment is a learning or growth option on the part of the investor, and

may make an otherwise unattractive deal worth considering. We expect these younger angel investments to be a smaller magnitude in order to provide the investor greater experience.

A more experienced 'angel,' who should have little interest in the learning experience, might make investments for market diversification benefits. An additional consideration in this context is dynamically balanced portfolios. An angel portfolio that has a number of mature investments may require early-stage investments to balance the portfolio and make it sustainable. If the investment portfolio leans heavily towards mature companies, the investor will increase early-stage investments to provide cash flows to the portfolio in subsequent years. We look for balancing of investment stages.

The propositions below are stated in the context of a recent change by the Alberta Securities Commission in the regulations with respect to exempt offerings. As described later in the paper, prior to the changes angel investors were not allowed to make investments of less than $97,000. The revisions to the regulations allowed, among other things, investor amounts considerably lower than that. As a result, certain qualified investors are now allowed to make smaller investment amounts, and this facilitates the kinds of diversification we have identified. We summarize our discussion of the portfolio benefits as follows:

Proposition 1: Reduction in the statutory floor will increase demand for market diversifying investments.
Proposition 2: Reduction in the statutory floor will increase demand for stage diversifying investments.
Proposition 3: Reduction in the statutory floor will increase inexperienced angel investment.

A number of researchers have distinguished between formal and informal private equity investors. It is our observation that angels and venture capitalists participate in fundamentally different markets. While it is generally true that venture capital investment is considered "formal", it is not clear to what extent angel investment is informal, as we describe below.

Fiet (1995) and Wright & Robbie (1998) describe the different approaches of formal and informal investors to managing agency and market risk. Formal investors stringently screen for market risk. After the investment, formal investors give a great deal of attention to agency risk, in the form of governance and monitoring. In gathering information on a prospective opportunity, they rely on more traditional 'informant' networks, such as banking relationships. The emphasis on monitoring shows itself in the following ways: high target goals coupled with strong incentives for meeting performance goals, greater use of traditional feedback mechanisms, and deeper involvement in board level decisions. Formal investors characteristically seek entrepreneurs with strong technology skills but weaker managerial and market expertise. We characterize this as a *"buy and grow"* strategy.

In contrast, informal investors more stringently screen agency, rather than market, risk. They gather information in a more *ad hoc* way through informal, trust networks, and tend to rely more on a relationship with the principals than on external controls. As a result, they are more willing to invest in firms with lower technological sophistication but where the principals possess higher managerial skills. We characterize this as a *"buy and watch"* strategy. There is a third strategy that we might characterize as *"buy and hope."* We identify in our data set an important segment of the 'informal' investors that are classified as neither angels nor venture capitalists. This group is identified under the exempt filings of "family, friends, and business associates" or "offering memorandum." This group is clearly neither formal (which would file as corporations) nor angels (which would file as accredited investors). This group of informal investors has received little attention in the private equity literature and yet they comprise almost 35% the dollar amount of all private equity financing in the sample.

Arguably, the difference between these strategies has to do with the expertise that the investor brings to the table. Analogous to the finance literature on 'dividend clientele,' we argue that there must be a precise match between the investor and investment characteristics. On the investor side, heterogeneity in investor skills, experience and portfolio wealth level will all play a role in the investment decision. On the investment side, firms have heterogeneous demand for investor involvement. Firms realize benefits from investor involvement beyond the contribution of capital. Managers may expect better management advice, improved access to information, and better alliance opportunities as a result of the venture capital network. In addition, in the case where the matching between

investor and firm results in significant information asymmetry, a staged investment strategy allows the investor to monitor and evaluate the firm's performance and thus mitigate the transaction risk.

Heterogeneity of both investor funds and firm's investment projects requires appropriate pairing for private equity investment markets to clear. We believe that this matching process will show itself most strongly in the market for control rights. Venture capital funds are typically focused on a particular technology or market segment, so that investors in the fund do not seek diversification, and fund managers are rewarded based on relative performance in the segment. Angel investors, by contrast, have limited non-financial resources for investment projects. This constrains their ability to monitor and manage to technologies where they possess little personal experience. Yet, their investment is still more efficient than venture capital investment, and there must be some comparative advantage for that. Aghion & Tirole develop the "theory of the existence of multiple principals" which results in a role for an outside investor in the management of innovation. That is, regardless of the particular expertise in matching investors and firms, there is an advantage to outside investment in bargaining for control rights. The investor role varies by stage of investment and the nature of the innovation, but we argue that angel investors will play a more significant role early in the development stage. In addition, angel investors' resources are more likely to derive from technologies that have become established. Combined with our earlier observations about angel investors, we propose the following:

Proposition 4: Informal investment is more likely in established informal networks.
Proposition 5: Informal investment will make greater use of staged investments.

Statutory Regime In Alberta and Recent Changes

The development of an effective statutory system within a jurisdiction involves a delicate balancing act. The securities regulator wants to provide the capability for developing firms to access equity financing, but must be careful to ensure that unsophisticated investors are provided with some minimum level of protection. When a firm is raising capital the securities law requires the regulator to approve the firm's prospectus, and that the firm provide ongoing disclosure of financial and other material information to investors.

The ongoing costs and obligations that are incurred when raising funds through a prospectus offering may be prohibitive for many companies trying to raise limited amounts of capital. Thus, the securities regulators allow a series of exemptions from securities legislation, such as the requirement to file a prospectus. Since the reporting and governance obligations of being a public company have increased in recent years, more and more firms are choosing to raise capital in the private equity market using exemptions to securities legislation.

As previously discussed, the private equity market poses significant risks for investors. The firms raising private capital typically have a limited operating history, have an ongoing need to raise additional equity financing, and may face significant market uncertainty. As well, the new firm may have management with limited experience, and may have a less developed governance structure, so that agency risk is higher in this marketplace.

The exempt equity financing market in Alberta is governed by a series of regulations that allows for the participation by various types of investors. After extensive consultation with market participants, the ASC introduced a set of new exemptions that took effect on March 30, 2002. The new regulations were entitled Multilateral Instrument 45-103 *Capital Raising Exemptions* (MI 45-103). These exemptions were called a multilateral instrument as they were adopted in other Canadian provinces in 2002. The old exemptions, and the new MI 45-103 exemptions, are outlined in Table 1.

Table 1: Private Equity Exemptions Historically Available in Alberta

Securities Act (Alberta) / ASC General Rules	
Statutory Exemption	**Description**
107(1)(b); 131(1)(b)	Isolated trade
107(1)(c); 131(1)(c)	Exempt purchaser
107(1)(l); 131(1)(l)	Asset acquisition of fair value in excess of $100,000
107(1)(m); 131(1)(m)	Consideration for mining or oil and gas assets
122(d) (General Rules)	Subsequent trades in mutual funds where the net asset value or aggregate acquisition cost of the securities held by the purchaser is not less than $97,000 as of the date of the trade
107(1)(d); 131(1)(d); 122.2(1)(General Rules)	Aggregate acquisition cost not less than $97,000
107(1)(z); 131(1)(bb)	Directors, senior officers, family and close friends and business associates of promoters
107(1)(p); 131(1)(q)	Offering Memorandum - first use
107(1)(q); 131(1)(r)	Offering Memorandum - subsequent uses
107(1)(t); 131(1)(s)	Trade between purchasers under the same OM
107(1)(t.1); 131(1)(t)	Trade between purchasers under the same OM
122(b) (General Rules)	Trades to registered dealers as consideration for services performed in connection with a distribution of securities
107(1)(u); 131(1)(u)	Trade between registered dealers
107(1)(a); 131(1)(a)	Banks, financial institutions, insurance companies
Blanket Order 45-506	employee, consultant, director, and senior officer
Blanket Order 45-503; 45-507	CDNX short form offering document
Rule 72-501	Distributions to Purchasers outside Alberta
MI 45-103	
3.1(2)	Family, friends and business associates
4.1(4)	Offering Memorandum
5.1(2)	Accredited Investor

Historically, the most commonly used exemptions were for family members, friends, or business associates (FFBA) of an entrepreneur (Exemptions 107(1)(z) or 131(1)(bb)), non-angel informal investors who would have been provided with an Offering Memorandum (OM) by the firm raising the capital (Exemptions 107(1)(p), 131(1)(q), 107(1)(q) or 131(1)(r)), and angel investors and institutional (VC) investors who would need to use the same "Sophisticated Investor" exemption (Exemptions 107(1)(d), 131(1)(d), or 122.2(1)). There are multiple exemptions listed for each category of investor as the exemption numbers have been changed over time. In order to qualify as a "Sophisticated Investor" the investor, either an individual or an institution, must be willing to invest a minimum of $97,000 in the firm. This set of regulations thus created a floor investment amount of $97,000 for angel investors.

The new MI 45-103 exemptions were developed by the ASC following extensive consultations with different stakeholders. One major concern of the ASC was that the $97,000 exemption did not adequately address the needs of either the firms raising capital, or the investors with the capital. The concern was that the $97,000 limit would require investors to put more capital into a firm than wanted to, or would deter investors from investing any amount in a given firm if they were unwilling to invest at least $97,000. Under the MI 45-103 exemptions, a new category of investor was defined, the Accredited Investor (AI). Accredited investors were defined to be wealthy individuals who were believed to be able to make informed investment decisions and who would be able to absorb an investment loss. The minimum income and asset tests associated with being defined as an AI are similar to the usual profile of an angel investor. Under the new regulations, AIs (accredited investors) were allowed to invest any amount they desired in a private equity transaction.

The MI 45-103 exemptions were designed to replace a number of earlier exemptions, but the ASC allowed security issuers a transition period, extending from March 30, 2002 until June 16, 2003, to adopt the new exemptions. During this transition period, security issuers were able to use the applicable exemptions available under the Alberta Securities Act, the General Rules, or the new MI 45-103 exemptions. Table 2 illustrates the changes in security exemptions.

Table 2: Timeline Illustrating the Evolution of Private Equity Exemptions in Alberta.

Prior to Jan 1st, 2001	Jan 1st, 2001	March 30th, 2002	April 30th, 2002	June 16th, 2003	Exemption In Use
107(1)(b)	131(1)(b)				131(1)(b)
107(1)(c)	131(1)(c)				131(1)(c)
107(1)(l)	131(1)(l)				131(1)(l)
107(1)(m)	131(1)(m)				131(1)(m)
122(d) (General Rules)					122(d) (General Rules)
107(1)(d)	131(1)(d)			122.2(1) (General Rules)	131(1)(d)
107(1)(z)	131(1)(bb)	Transition		3.1(2)	3.1(2)
107(1)(p)	131(1)(q)	Transition		4.1(4)	4.1(4)
107(1)(q)	131(1)(r)				
107(1)(t)	131(1)(s)				
107(1)(t.1)	131(1)(t)				
122(b) (General Rules)		Transition		5.1(2)	5.1(2)
107(1)(u)	131(1)(u)				
107(1)(a)	131(1)(a)				
Blanket Order 45-506					Blanket Order 45-506
Blanket Order 45-503			Blanket Order 45-507		Blanket Order 45-503

The Data

Although the use of an equity market exemption does not require the filing of a prospectus prior to an equity offering, the ASC requires that firms that use the exemptions file a report within ten days of the financing. The exempt market reports are made using either a Form 20, used under the old regulations, or using a Form 45-103F4, required under the MI 45-103 regulation. This study examined all Form 20's and Form 45-103F4's that were filed with the ASC by firms raising private equity capital in Alberta between April 1st, 2003 and July 31st, 2003. This time period was chosen to allow a comparison with an earlier ASC study that gathered exempt equity filing information over the period April 1st, 2002 and July 31st, 2002. Each exemption form contained a great deal of information about the financing including detailed information about the issuing firm, the total amount of capital raised, and the amount raised in Alberta. Furthermore, for each Alberta resident who purchased equity, the form provides the name of the purchaser, the amount of capital they invested, and what exemption the purchaser was using. This data thus provides a unique opportunity to identify the behaviour of different types of investors in the private equity marketplace.

Analysis & Results

A total of 547 equity exemption filings were examined, which represented a total of $677.5 million in total capital raised (see Table 3). Of the 547 equity exemptions filed, 326 were filed by firms based in Alberta and 221 were filed by firms from outside of Alberta (only 8 were from outside Canada). By way of comparison, firms listed on the Toronto Stock Exchange Venture Market (TSXV), the public market in which developing firm raise equity capital in Canada, raised only $70 million in primary and secondary offerings over the same time period. This demonstrates the very large size of the private equity market in Canada. The average amount of capital raised in each filing was over $1.0 million, although the median amount was much smaller at a few hundred thousand dollars.

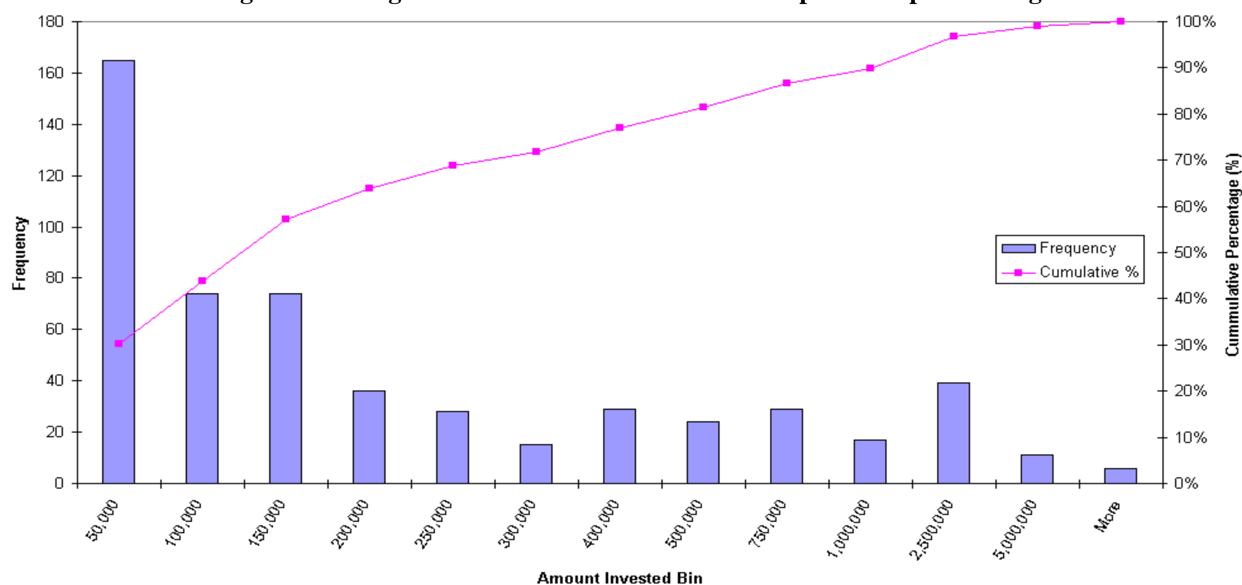
Table 3: Summary of Capital Raised in the Private Equity Marketplace: April-July 2003

	Total	Alberta Issuers	Non-Alberta Issuers
Number of Filings	547	326	221
Total Capital Raised	$677,512,998	$425,798,749	$251,714,248
Average Capital Raised	$1,238,598	$1,306,131	$1,138,978
Median Capital Raised	$200,000	$219,050	$170,901

The values in Table 3 represent the amount of capital raised by companies that raised at least some of their capital in Alberta. The actual amount raised solely in Alberta by these firms over this time period was $235,169,293. It is this amount raised only in Alberta that will be used to provide insights into the nature of the private equity marketplace. The reason that the analysis will be restricted to Alberta-only financing is that the ASC requires complete disclosure of investor information only for funds raised from Alberta residents.

Figure 1 presents a histogram of the proceeds raised solely in Alberta by size of offering for all 547 filings. The histogram contains a count of the filings for a specified proceed range (the bar graph) as well as a cumulative line indicating how much of the total proceeds were raised at that amount. For example, consider the range $0 to $50,000. Based on the bar graph there were 165 filings that reported Alberta-only proceeds in this range. Using the cumulative plot (the line graph) 30% of the filings reported raising $50,000 or less. For the cumulative percentage plot the scale on the right is used. For the next category, $50,000 to $100,000, there were 74 filings with this size, and the cumulative line indicates that approximately 44% of all filings were for under $100,000. Thus, 14% of the filings must have been for an amount of between $50,000 and $100,000. An additional 74 filing (14%) were for an amount between $100,000 and $150,000, and thus the median size occurred in this range. The actual median amount raised in Alberta with these exempt offerings was $121,200.

Figure 1: Histogram of Proceeds Raised in Alberta per Exemption Filing



The Figure 1 data suggests that the exempt marketplace is being used by firms to raise very modest amounts of equity capital. Over 60% of the financings raised less than $150,000 in Alberta, and over 80% raised

less than $500,000. Although each individual transaction was small, in aggregate they represented a large amount of equity capital. As discussed above, the total amount raised in the Alberta, $235 million, is many orders of magnitude larger than the entire amount, $70 million, raised by all companies in the Canadian public venture marketplace. Thus, the private equity market is worthy of further in-depth study.

The study of this marketplace was facilitated by the detailed data that was collected from the exempt filings submitted to the ASC. For each filing, each Alberta purchaser was required to be listed by name, and information about the amount they invested and what exemption they used to make the investment was recorded. As shown in Table 4, the 547 filings involved a total of 5,713 purchasers (an average of 10.4 Alberta purchasers per filing).

Table 4: Summary of Purchaser Details in Alberta's Private Equity Marketplace: April-July 2003

	Total	Alberta Issuers	Non-Alberta Issuers
Number of Purchasers	5,713	3,676	2,037
Average Alberta Purchasers per Filing	10.4	11.3	9.2
Total Capital Raised in Alberta	$235,169,293	$168,517,547	$66,651,746
Average Investment Amount in Alberta	$41,164	$45,843	$32,721
Median Investment Amount in Alberta	$10,350	$14,850	$7,500

The results in Table 4 indicate that there were more Albertan investors per filing if the firm was an Alberta issuer. As well, the average and median capital invested per purchaser was higher for Alberta's issuers than for non-Alberta issuers. This provides evidence that Albertans prefer to invest close to home which provides evidence in support of Proposition 4, that informal investors will invest more in established informal networks.

The large difference between the mean and median amounts in Table 4 suggests that the amount of investment per purchaser is highly skewed. To gain insights into the distribution of investments made by purchasers a histogram of the investment amount per purchaser is presented in Figure 2. This histogram illustrates that of the 5,713 purchases made between April and July 2003, almost 1,800 (over 30%) were for an amount of less than $5,000. It also indicates that almost half of the investments were for under $10,000 (Table 4 indicates that the median investment was $10,350), and 90% of the investments were for an amount of under $75,000. These results suggest that the private equity market is predominantly used by individual investors with limited capital. This issue will be explored later in the study.

While the main models of the private equity marketplace treat investors as a homogeneous group, securities legislation allows for a number of different market participants who are required to use different exemptions to be able to invest. To determine whether there is homogeneity in the investor group, or whether there are in fact distinct investors groups active in the private equity market, this study determined the amount of capital raised by type of possible exemption, see Table 5 (the investment amount in Table 5 for the period April 1 to July 31, 2003 is slightly lower than the amount in Table 4 as a few minor exemptions were not included in Table 5). The data in this table is based on purchases by Albertans of Alberta-based companies only to provide a comparison of the results from the year 2002 which was contained in an earlier report by the Alberta Securities Commission, ASC (2002).

The Table 5 results indicate that there are three main types of exemptions used in the private equity (exempt) market. Institutional investors and angel investors would invest using either the Sophisticated Investor or the Accredited Investor exemptions (the group will be subdivided into institutional and angel investors in a subsequent table). These exemptions accounted for 66.28% of the capital raised in 2002 and 59.64% of the capital raised in 2003. The Friends, Family and Business Associates (FFBA) exemption would be used by individual investors (or corporations owned by individual investors) who had an existing personal, or business, relationship with the managers of the firm raising the capital. This exemption was updated with the new MI 45-103 exemption and we can see that this exemption was used to raise 22.84% of the capital in 2002 and 27.09% of the capital in

Figure 2: Histogram of the Investment Amount per Purchaser in Alberta

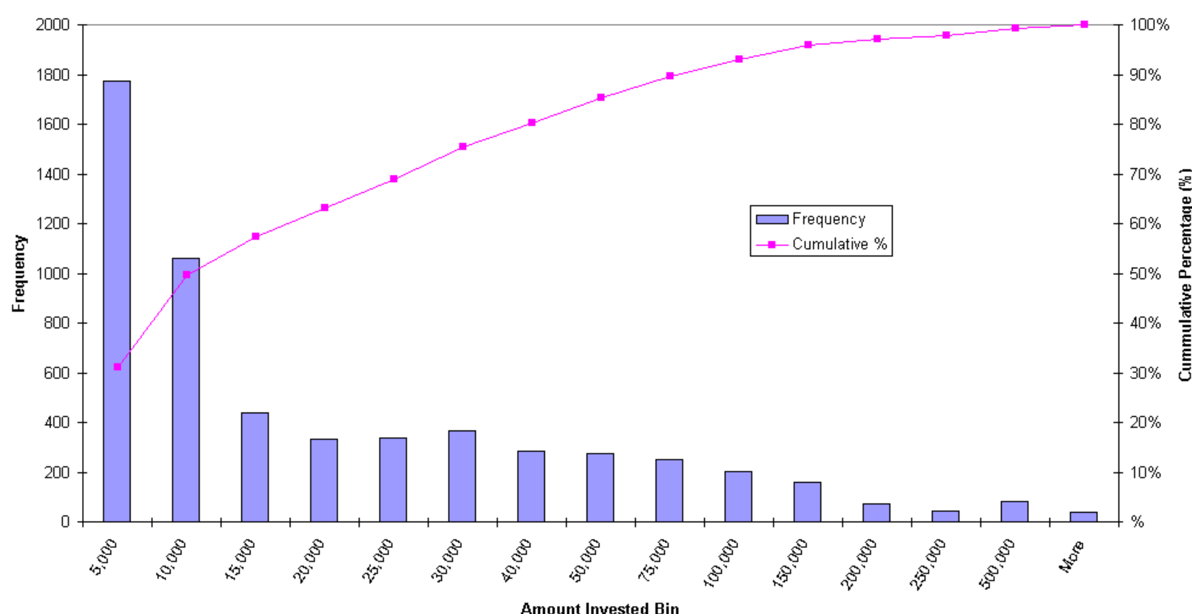


Table 5: Proceeds Raised by Alberta Based Issuers from Alberta Subscribers for the Two Study Periods by Statutory Exemption (Grouped Where Appropriate)

Statutory Exemption	Proceeds ($) April 1 to July 31, 2002	Proceeds ($) April 1 to July 31, 2003	Percentage (%) April 1 to July 31, 2002	Percentage (%) April 1 to July 31, 2003
Exempt Purchaser	$0	$2,000	0.00%	0.00%
Asset Acquisition over $100,000	$4,976,111	$272,500	6.06%	0.16%
Consideration for Oil/Gas Assets	$0	$20,000	0.00%	0.01%
Sophisticated Investor ($97,000)	$21,819,230	$25,059,138	26.56%	15.03%
Friends, Family, Bus. Assoc. (Old)	$8,887,006	$2,230,914	10.82%	1.34%
Offering Memorandum - 1st (Old)	$0	$635,000	0.00%	0.38%
Offering Memorandum - Sub. (Old)	$932,552	$120,000	1.14%	0.07%
Friends, Family, Bus. Assoc. (New)	$9,871,392	$42,931,161	12.02%	25.75%
Offering Memorandum (New)	$2,545,135	$13,064,355	3.10%	7.84%
Accredited Investor (New)	$32,628,190	$74,379,270	39.72%	44.61%
CDNX Short Form Offering Document	$388,500	$5,157,715	0.47%	3.09%
Employee, Consultant, Director	$100,000	$2,842,105	0.12%	1.70%
Total	$82,148,117	$166,714,158	100.00%	100.00%

2003. Clearly this group of investors is a very large segment of the private equity markets and has not been clearly identified historically. The final major category of exemption is for an Offering Memorandum (OM) which is a short document providing limited information about a firm. This exemption would be used by the general investing public who did not have a prior relationship with the management team of a firm, to make an investment in that firm. The Table 5 results show that the OM exemption was used to raise 4.24% of the capital in 2002 and 8.29% of the capital in 2003.

The fact that individual investors who have an existing personal or business relationship with the management of a firm invest significantly more than individual investors who do not have an existing relationship with the management team provides additional support for Proposition 4. This Proposition will be further examined later in the study.

The Table 5 data indicates that the amount of capital raised in Alberta's private equity market doubled over the period from 2002 until 2003. A review of data from the Toronto Stock Exchange Venture Exchange's Equity Financings Summaries, showed that the percentage amount of capital raised in primary and secondary offerings in the public venture marketplace actually decreased from $83 million in the April to July 2002 time period to $70 million in the April to June 2003 time period. This provides some support for the idea that the changes in private equity exemptions in Alberta served to increase the amount of private equity capital being raised in the province.

The Table 5 results also indicate a significant shift in the type of exemptions used by the institutional investors and angel investors from 2002 to 2003. Over that time period, the capital raised using the Sophisticated Investor exemption declined while the percentage of capital raised using the Accredited Investor exemption increased. The results support the idea that these investors came to realize the advantages of using the Accredited Investor exemption (it was first brought into effect at the start of the 2002 time period) and used it more heavily as time passed. As well, the regulations have resulted in more wealthy Alberta investors choosing to invest as an Accredited Investor as opposed to as a Sophisticated Investor. A more complete review of how this new AI exemption was used will provide additional insights into how the change in regulations affected investor behaviour in the exempt equity market.

To test Propositions 1 through 3, a great deal of information about the manner in which exemptions were used by investors was gathered. Based on the information in the exemption filing, it was possible to classify investors into one of five categories: corporate investor, mutual fund company investor, individual investor, partnership investor, or trust company investor. Table 6 presents the number of investors who used each exemption according to the type of investor. The results indicate that approximately 88% of the purchasers of exempt Alberta equity financings were individuals, with corporate purchasers accounting for most of the remaining purchases (the number of purchasers in Table 6 and subsequent table is less than 5,713 as infrequently used exemptions were excluded).

Table 6: Number of Purchases Based on Type of Purchaser and Exemption Used

	Number of Purchasers					
Statutory Exemption	Corporate Investor	Fund Company Investor	Individual Investor	Partnership Investment	Trust Company	Total
Exempt Purchaser			1			1
Asset Acquisition over $100,000	4					4
Consideration for Oil/Gas Assets	2		5			7
Sophisticated Investor ($97,000)	57	4	81	8	1	151
Family, Friends, Bus. Assoc. (Old)	7		132		1	140
Offering Memorandum - 1st (Old)	1		8			9
Offering Memorandum - Sub. (Old)	1		9			10
Family, Friends, Bus. Assoc. (New)	97	5	1,047			1,149
Offering Memorandum - (New)	108		1,037			1,145
Accredited Investor (New)	290	19	1,845	7	12	2,173
CDNX Short Form Offering Document	65	2	742			809
Employee, Consultant, Director	5		56		1	62
Total	637	30	4,963	15	15	5,660

Table 6 also indicates that the new MI 45-103 exemptions became the most heavily used exemptions by market participants. Of the 5,660 total purchases made in Table 6, 4,467 (78.9%) were made using the new exemptions. This indicates that investors quickly moved to adopt the new regulations. To consider the effect that the new regulations had on angel investors, we focus our examination on the individual investor column. Looking at the regulations that were designed to allow angel investors to participate in equity financings, the old Sophisticated Investor (SI) exemption and the new Accredited Investor (AI) exemption, we note that the AI exemption was used 1,845 times while the SI exemption was used only 81. This supports the idea that angel investors preferred the greater flexibility provided under the AI exemption. It is likely that these new users of the AI exemption were less

experienced angel investors who were not comfortable investing a minimum of $97,000 in a given company. This provides some support for Proposition 3 (a more direct test of this proposition will also be developed).

Table 7 presents the total proceeds raised in Alberta from the different investor types separated according to the exemption claimed. The results indicate that while individuals accounted for 88% of all investors by number, they accounted for only 60% of the capital provided, while corporate purchasers accounted for 34% of the proceeds.

Table 7: Total Proceeds Raised According to Type of Purchaser and Exemption Used

	Total Proceeds Raised from Purchasers					
Statutory Exemption	Corporate Investor	Fund Company Investor	Individual Investor	Partnership Investment	Trust Company	Total
Exempt Purchaser			2,000			2,000
Asset Acquisition over $100,000	437,600					437,600
Consideration for Oil/Gas Assets	101,000		64,051			165,051
Sophisticated Investor ($97,000)	15,692,039	1,621,396	13,792,936	2,453,550	200,000	33,759,921
Family, Friends, Bus. Assoc. (Old)	199,892		2,113,652		50,000	2,363,544
Offering Memorandum - 1st (Old)	25,000		610,000			635,000
Offering Memorandum - Sub. (Old)	2,000		118,000			120,000
Family, Friends, Bus. Assoc. (New)	18,505,125	254,500	28,565,259			47,324,885
Offering Memorandum - (New)	4,730,381		14,223,741			18,954,121
Accredited Investor (New)	37,254,279	5,088,372	74,867,452	2,037,780	650,003	119,897,886
CDNX Short Form Offering Document	2,459,456	38,400	4,187,250			6,685,106
Employee, Consultant, Director	127,500		2,769,606		20,000	2,917,105
Total	79,534,271	7,002,668	141,313,946	4,491,330	920,003	233,262,218

Table 8 presents the average proceeds raised in Alberta from each different investor type classified according to exemption claimed. The Table 8 results show that, for each exemption type, the average purchase amount was usually significantly smaller for individual investors than for other types of investors. Focusing solely on the individual investors, we note that for the angel investor exemptions the average investment size was $170,283 when the old SI exemption was used and only $40,579 when the new AI exemption was used. This supports the idea that the change in exempt regulations has allowed new angel investors to enter the exempt equity market and make investments of a dollar amount they are more comfortable with. This is consistent with Proposition 3, that a reduction in the statutory floor will increase inexperienced angel investment.

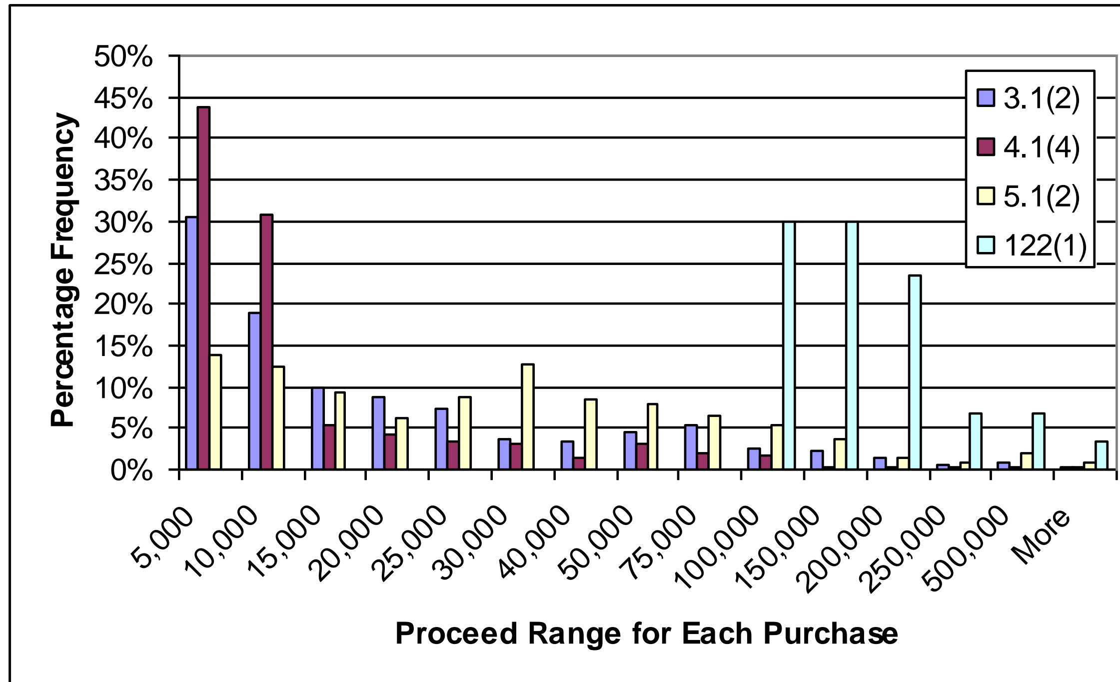
Another category of individual investor is the non-angel investor. These investors would either have a direct relationship with the management team of the firm raising capital and would use the FFBA exemption, or they would not have a direct relationship with the management team and would use the OM exemptions. Looking at the new FFBA and OM exemptions, Table 8 indicates that the average amount invested using the FFBA exemption ($27,283) is almost twice as high as the average amount invested using the OM exemption ($13,716). This provides support for Proposition 4, that informal investment is more likely in established informal networks. In other words, an investor is willing to invest a larger amount if they have a prior relationship with the management team of a firm.

As was identified earlier in this study, exempt market investments are highly skewed. Thus, it may be useful to augment our analysis of average amounts invested with information about the distribution of investment amounts. To focus on the key investor groups, only four categories of exemption were studied in detail, see Figure 3. The four categories are the new FFBA exemption (3.1(2)), the new OM exemption (4.1(4)), the new AI exemption (5.1(2)), and the old SI exemption (122.2(1)).

Table 8: Average Amount Invested by Each Type of Purchaser and Exemption Used

Statutory Exemption	Average Proceeds per Purchaser					
	Corporate Investor	Fund Company Investor	Individual Investor	Partnership Investment	Trust Company	Exemption Average
Exempt Purchaser			2,000			2,000
Asset Acquisition over $100,000	109,400					109,400
Consideration for Oil/Gas Assets	50,500		12,810			23,579
Sophisticated Investor ($97,000)	275,299	405,349	170,283	306,694	200,000	223,576
Family, Friends, Bus. Assoc. (Old)	28,556		16,013		50,000	16,882
Offering Memorandum - 1st (Old)	25,000		76,250			70,556
Offering Memorandum - Sub. (Old)	2,000		13,111			12,000
Family, Friends, Bus. Assoc. (New)	190,774	50,900	27,283			41,188
Offering Memorandum - (New)	43,800		13,716			16,554
Accredited Investor (New)	128,463	267,809	40,579	291,111	54,167	55,176
CDNX Short Form Offering Document	37,838	19,200	5,643			8,263
Employee, Consultant, Director	25,500		49,457		20,000	47,050
Total	124,858	233,422	28,473	299,422	61,334	41,212

Figure 3: Histogram of Proceeds Using Exemptions 3.1(2) [FFBA], 4.1(4) (OM), 5.1(2) (AI), and 122.2(1) (SI)



The histogram indicates that just over 30% of the times the FFBA exemption was used for an amount of under $5,000, and just less than 20% of the time the FFBA exemption was used for an amount of between $5,000and $10,000. Thus, half of the time this exemption was used by an individual to invest under $10,000 in a firm. With the OM exemption, almost 45% of the time it was used by individuals to invest under $5,000 in a firm, and just over 30% of the time it was used for an investment amount of between $5,000 and $10,000. For all larger investment amounts, the FFBA exemption had a higher percentage usage than the OM exemption. Again, these results are consistent with Proposition 4.

The results for these non-angel individual investors are also consistent with the idea that these investors making a staged series of investments in developing firms, with the amount of the commitment a function of the stage of the firm's development and the experience the non-angel has investing with the firm's management team. Thus, the results are consistent with Proposition 5, that informal investment will make greater use of staged investments.

Considering the angel investor market, we note some striking differences between the amounts invested using the AI and the SI exemptions. With a statutory minimum required investment of $97,000 under the SI exemption, it is not surprising to note that 30% of the time the exemption was used to invest under $100,000. Thus, about 30% of the time this exemption was used to make the minimum possible investment. With the new AI investment, it is interesting to note that 14% of the time this exemption was used to make an investment of under $5,000, 25% of the time it was used to make an investment of under $10,000, and 60% of the time it was used to make an investment of under $30,000. To observe this sort of investing behaviour from angel investors is interesting and suggests a number of possible explanations. One explanation is that angel investors are using the ability to invest less than $97,000 in a given firm to increase the number of smaller investments they are making in developing firms. As discussed earlier, this strategy will allow the angel to more easily diversify their private equity portfolio and is consistent with Proposition 1. A second explanation is that angel investors prefer to use a staged investment approach when placing money in developing firms. A staged investment approach is used extensively by venture capital investors to allow the VC to "learn" about the organization and its management team before committing additional capital. It is likely that angel investors use a similar staged investment approach whereby they will commit a limited amount of capital early in the life of a firm until they gain more information. As a firm successfully develops, the angels will increase their investment amount in later financing rounds. This explanation is consistent with Proposition 2 and with Proposition 5.

Another previously discussed explanation for the results in Figure 3 is that the changes in regulations governing the exempt equity market in Alberta have allowed new inexperienced angel investors to enter this market. These inexperienced angels are willing to make a small investment in developing firms until they learn more about how to make successful investments in this market. As these inexperienced angels develop more knowledge and confidence with respect to their investment skills in this market, they are expected to increase their level of participation and their minimum investment size over time. This explanation is consistent with Proposition 3.

Summary and Conclusions

The exempt market for capital in Alberta is a dynamic market, used extensively by a growing number of firms to raise a significant amount of equity capital. Our study indicates that the market for private equity for developing firms in Alberta is much larger than the public equity market for these firms. Our results also demonstrate that there are a number of diverse investors active in this market, including formal and informal investors. Venture capital investors were the major players in the formal market. The informal market includes both angel and non-angel investors. Change in the regulations governing the informal group has had a dramatic effect on the investment strategy, with a resulting increase in capital.

Our model and empirical results support the notion that lowering the statutory required investment amount by angels allows these investors to become more active in the private equity market and to invest smaller amounts per investment. This result is consistent with the Proposition that angel investors lower their market risk by diversifying their investments. The results also support the Proposition that angel investors prefer to invest a smaller amount in a number of firms. This allows them to better manage risk. This strategy helps manage agency risk because investors can monitor the management team through the stages. It helps manage emerging market risk because the investor can better assess firm's prospects before committing to subsequent financing rounds. We term this investment behaviour, "buy and hope". Finally, the results also support the Proposition that lowering the minimum investment encourages less experienced angel investors to enter the marketplace. As these neophyte angel investors become more experienced with the private equity market there are expected to be willing to invest larger amounts in additional firms in the future.

The study also documented the existence of a very large informal market for equity capital, the family, friends and business associates (FFBA) of the firm founders, and the non-angel investing public (the OM investors). These investors provided 35% of the capital in the private equity market but have historically not been carefully studied. The results of this study support the Proposition that these non-angel informal investors prefer to invest in established informal networks, i.e. they prefer to invest with people they know. As well, the Proposition that these non-angel informal investors prefer to use a staged investment approach was also supported.

Areas for Future Research

This study provides a preliminary examination of the nature of the private equity market based on secondary market data. While there are a number of interesting findings with respect to this market, there remain a number of unanswered questions. The study found that a change in security market regulations resulted in a change in the investment behaviour of angel investors; however, we were unable to clearly determine whether the change was due to these angels seeking to diversify away market risk in their portfolio, or due to their desire to engage in a staged investment strategy. Further detailed analysis of the investment patterns that angel investors make with respect to a particular firm over time may help shed light on this issue. Specifically, it may be possible to gather information about the stages of financing used by private equity firms and to track the investment decisions made by angels with respect to these stages. This time series analysis of firm financings may help confirm that angels follow a "buy and hope" strategy with respect to their investment in private firms.

An alternative method of gaining insights into the decision process followed by angel investors would be to conduct interviews of this investment group. While there is a great deal of historic research with respect to the personal characteristics of angel investors, and some research with respect to their investment screening process, further investigation of their investment decision making process over time is warranted.

Finally, while the results indicate that a change in security market regulations resulted in an increase in the pool of capital available from informal equity investors, we were unable to clearly determine the reason for this increase. Were existing angels more willing to provide capital once the regulations were amended, or did new inexperienced angels enter the market? Clearly the later event would be of greater long-term impact to the supply of informal capital in the Alberta marketplace. A series of interviews with private equity market participants may help to resolve this issue.

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