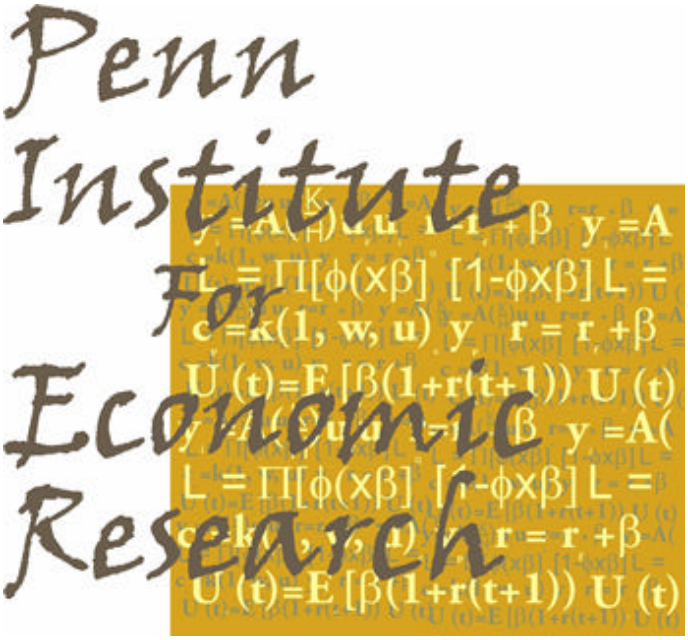

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"Geography and Industry Meets Venture Capital"

by

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Geography and Industry Meets Venture Capital

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Geography and Industry Meets Venture Capital

Abstract

Do certain regions inherently enjoy an advantage in venture capital investment decisions? And how do industry characteristics affect venture capital activity? These questions fall under the reemerging study of economic geography, which suggests the importance of industrial location to economic decision making. Through the lens of economic geography, this paper examines the impact of industrial and regional characteristics on venture capital activities from 1996 to 2005. Analyzing venture capital data with nineteen regions and seventeen industries, this study affirms the significance of geography and industry to investment trends in venture capital.

JEL Classification: C12, D81, D92, E22, G12, G24, G3, M13, M21, O16, O3

Key Words: Venture Capital; Venture-Backed Public Companies; Economic Geography; Location; Biotechnology; Business Products and Services; Computers and Peripherals; Consumer Products and Services; Electronics and Instrumentation; Financial Services; Healthcare Services; Industrial and Energy; Information Technology Services; Media and Entertainment; Medical Devices and Equipment; Networking and Equipment; Retailing and Distribution; Semiconductors; Software; Telecommunications.

Geography and Industry Meets Venture Capital

I. Introduction

This paper studies venture capital investment activity in the United States in the years 1996 to 2005, stratified by both locations and industries. The paper raises the question of whether location and geography are still important features to explaining venture capital investment decisions. In addition to geographic considerations, are different industries and sectors also important in explaining the amount of dollars invested in venture capital?

The paper is motivated by the reemerging importance of economic geography and the realization that industrial location is fundamental to understanding the field of economic geography. The new economic geography literature is particularly suggestive in indicating how historical accident can shape economic geography. Following Krugman (1995a), one may predict that once spatial issues are explicitly integrated into economics modeling, economic geography will gain further insights. These issues have been a focus of studies for both international economists and industrial organizations researchers, but have not received due consideration in the venture capital literature.

The data for this study on venture capital investment activity in the United States are from The MoneyTree Survey. The survey is a quarterly study of venture capital investment activity in the United States. The survey is considered to be a credible source of information on emerging companies that receive financing and the venture capital firms that fund them. The information in the survey is augmented by other public and private sources. The data are subject to verification with the venture capital firms and/or

the investee companies. The survey is regularly used by the financial community, entrepreneurs, government policymakers as well as the international business press.

The data include information about the amount of venture capital investment as well as the number of deals, stratified by nineteen regions in the United States. Furthermore, the data are classified into seventeen industries. Appendices A and B presents the geographical regions and the industry classifications respectively in detail. In total, the data consist of 8,270 quarterly observations for the years 1996 to 2005.

The statistical results confirm the importance of both regions and industries in explaining the natural log of both nominal and real investment in venture capital. Except for one industry out of the seventeen industries, industry-coefficients are highly statistically significant. Furthermore, all regional coefficients are statistically significant except for the region of Upstate New York.

The remainder of the paper is organized into the following sections. Section II presents a brief review of the literature. Section III describes the data. Section IV details the empirical results. Section V concludes.

II. Literature Review

The reemergence of the importance of economic geography is due in large part to the pioneering works of Krugman in series of papers, (Krugman, 1991a, 1991b, 1998, 2006), Fujita and Krugman (2004), and a series of papers by Venables (1994, 1996, 1998), and his coauthors, (Redding and Venables, 2002, 2004, Storper and Venables, 2004, Overman, Redding, and Venables, 2001, Midelfart, Overman, and Venables, 2000).

Krugman (1991a) examines how regions unevenly develop economically and emphasizes the importance of economic geography in explaining divergent regional development. Krugman (1991b) develops a simple model that shows how a country can endogenously become differentiated into an industrialized "core" and what he calls an agricultural "periphery".

Krugman (1998) discusses the emergence of a new area of research, often described as the 'new economic geography'. It differs from traditional work in economic geography via the adoption of a modeling strategy that exploits the same technical tools found in the 'new trade' and 'new growth' theories. The new work is highly suggestive, particularly in indicating how historical accident can shape economic geography. For a recent description of the new economic geography see, for example, Fujita and Krugman (2004).

The new economic geography may be studied under varying conditions. Krugman (1991, 2006), incorporates increasing returns to economic geography. Scott (2006) studies the changes in global geography for low-technology, labor-intensive industries. Krugman (1995a) explores the fall and rise of development economics and economic geography's failure to find recognition within the corpus of economic theory. He predicts that, as with development theory, once spatial issues are explicitly integrated into economics modeling, economic geography will gain further insights.

Redding and Venables (2004) estimate a structural model of economic geography using cross-country data on per capita income, bilateral trade, and the relative price of manufacturing goods. They provide evidence that the geography of access to markets

and sources of supply is statistically significant and quantitatively important in explaining cross-country variation in per-capita income.

Venables (1994) studies industrial location within the context of international trade. He focuses on the way in which reducing barriers to trade may induce relocation of industries. Integration may cause industries to agglomerate in a few locations, leading to divergence of the structure of integrating economies, which may generate further income inequality. Overman, Redding, and Venables (2001) survey the empirical literature on the economic geography of trade flows, factor prices, and the location of production. They construct a canonical theoretical model and then review empirical evidence on the direct and inverse causality between trade costs and trade flows.

The study of industrial location is fundamental to understanding the field of economic geography. Behrens (2005) investigates the importance of market size as a determinant for industrial location patterns. Midelfart, Overman, and Venables (2000) develop and estimate a model of the location of industries across countries. The model combines factor endowments and geographical considerations, and shows how industry and country characteristics interact to determine the location of production. Crafts and Mulatu (2006) explore the location of industry in pre-World War I Britain using a model that takes into account if both factor endowment and the effects of the new economic geography pioneered by Krugman (1991a).

Ng and Tuan (2006) apply the Krugman (1991a) model to China, investigating the "spatial dimension" of firm concentration and its economic interactions with growth. They study the interaction between firm locality and institutional factors, such as regional policy on FDI, among other factors. Redding and Venables (2002) explore the economic

implications of isolation and remoteness. Empirical work confirms the predictions of theory, that distance from both markets and sources of supply may have a significant negative impact on per-capita income.

Storper and Venables (2004) emphasize the importance of proximity and develop formal economic models of face-to-face contact and interactions. Four main features characterize face-to-face contact: it is an efficient communication technology; it can help solve incentive problems; it can facilitate socialization and learning; and it provides psychological motivation. They argue that face to face contact is particularly important in environments where information is imperfect, rapidly changing, and not easily codified; these are key features of many creative activities.

Venables (1998) describes a few models designed to explain the effects of globalization on industrial location. He suggests that comparative advantage is inadequate in explaining several aspects of the changing patterns of trade and location and that approaches based on the new economic geography and theories of cumulative causation must be supplemented.

Krugman and Venables (1993) use a theoretical model of industrial localization to demonstrate the possibility of Europe developing an American-style economic geography, and to show the possible transition costs associated with this shift. Mori, Nishikimi, and Smith (2005) propose a statistical index of industrial localization to test the relative degrees of localization among industries.

Transport costs are shown to have an impact on industrial locations. Alonso-Villar (2005) studies the location decisions of upstream and downstream industries when transport costs in each sector are analyzed separately. By using a new economic

geography model built on Venables (1996), he shows that the effects of cost reductions in transporting final goods are different from those in intermediate goods. Venables (1996) relates the locations of two vertically linked industries with transport costs and imperfect competition. Imperfect competition and transport costs create forward and backward linkages between upstream and downstream industries, and at intermediate transport costs, these linkages determine location.

Krugman (1995b) examines the nature of external economies. Empirical studies of urban development have provided some insight concerning the nature of economic spillovers. Krugman (1995b) studies the origins of economic structures as they emerge from the unplanned interactions of economic agents. Puga and Venables (1996) describe the spread of industry from country to country as a region grows. Robbins (2006) tests for localized knowledge spillovers from out-of-state innovations using data on U.S. manufacturing from 1977 to 1997. He finds that the source of these spillovers is innovations categorized into different technologies based on U.S. patent classes and patent data. Puga and Venables (2006) study the spread of industries using a spatial agglomeration model.

The buildup of urban regions, areas known as agglomerations, has been found to have a direct impact on economic geographies. Deveruex and Griffith (2004) investigate the geographic concentration and agglomeration of production activity in the UK at the four-digit industry level using a variety of measures. They relate these to comparable patterns in the US and France and find several similarities. Geppert, Gornig, and Werwatz (2006), investigate the relationship between economic growth of agglomerations and geographic concentration of industries. They find that increasing

localization of fast growing industries is an important factor behind the changes in the spatial pattern of the economy.

Venables (2005) reviews and develops models that capture the natural advantages of some regions relative to others and the presence of agglomeration forces, leading to clustering of activity. The presence of increasing returns to scale in cities leads to urban structures that are not optimally sized. This depresses the return to job creation, possibly retarding development. Sorenson, Rivkin and Fleming (2006) examine patent data and compare citation rates across proximate and distant participants on three dimensions: (1) the inventor collaboration network; (2) firm membership; and (3) geography. They find support for the proposition that socially proximate participants have the greatest advantage over distant ones in matters of moderately complex knowledge. They discuss the implications of the findings for geographic agglomeration of industries, among others.

In addition to geographical location, another important consideration is the industry choice. In the context of venture capital literature, the pioneering study, based on one hundred start-up firms, is Murphy (1956). He concludes his study in the following way: "In both my surveys, the conclusion remained the same. The man who chose the promising field did better than the man who elected to slug it out in one already crowded. Or, when the same man tried both, he often failed in the highly competitive business and went on to success in the growing one". The importance of industry choice in achieving start up success has also been studied by others: Hoad and Rosko (1964), Cooper and Komives (1972), Reynolds (1986), Bruno, Leidecker and Harder (1986), Ronstadt, Hornaday, Peterson, and Vesper (1986), Phillips and Kirchoff (1988), and

Vesper (1990). Shachmurove A. and Shachmurove Y. (2004) explore annualized and cumulative returns on venture-backed public companies categorized by industry.

The issue of what makes an entrepreneur is investigated by Constant, Shachmurove and Zimmermann (2007). Shachmurove (2007) relates issues in international trade to entrepreneurship, innovation, and the growth mechanism of the free-market economies. Entrepreneurial ventures in Germany for both immigrants and natives are studies in Constant and Shachmurove (2006), and in South Africa by Kellman, Shachmurove and Roxo (2003). Annual and cumulative returns of publicly traded firms who were backed by venture capital are studied in series of papers by Shachmurove, Y. (2001), Shachmurove E. and Shachmurove Y (2004), and Shachmurove, A. and Shachmurove, Y (2004).

III. Data

The data on venture capital investment activity in the United States are from The MoneyTree Survey. The survey is a quarterly study of venture capital investment activity in the United States. The survey is conduced as collaboration among PricewaterhouseCoopers, Thomson Venture Economics and the National Venture Capital Association; it is the only industry-endorsed research of its kind. The survey is considered to be the definitive source of information on emerging companies that receive financing and the venture capital firms that provide it. Although the data are primarily obtained from a quarterly survey of venture capital practitioners, the information is augmented by other research techniques including other public and private sources. All data are subject to verification with the venture capital firms and/or the investee

companies. The survey is regularly used by the financial community, entrepreneurs, government policymakers as well as the international business press.

The survey measures cash-for-equity investments by the professional venture capital community in private emerging companies in the U.S. The survey includes the investment activity of professional venture capital firms with or without a US office, Small-Business Investment Companies (SBICs), venture arms of corporations, institutions, investment banks and similar entities whose primary activity is financial investing. The survey only includes investments from other participants such as angels, corporations, and governments if they are from a qualified and verified financing round. Qualifying transactions include cash investments by these entities either directly or by participation in various forms of private placement. All recipient companies are private, and may have been newly-created or spun-out of existing companies. All equity financing rounds following a qualifying venture capital financing round are included, regardless of whether the round involved a venture capital firm, as long as all other investment criteria are met (e.g. cash-for-equity, not buyout or services in kind).

The survey excludes debt, buyouts, recapitalizations, secondary purchases, Initial Public Offerings (IPOs), investments in public companies such as Private Investments in Public Entities (PIPES), investments for which the proceeds are primarily intended for acquisition such as roll-ups, change of ownership, and other forms of private equity that do not involve cash such as services-in-kind and venture leasing. Angel, incubator and similar investments are considered pre-venture financing if the company has received no prior qualifying venture capital investment and are not included in the MoneyTree results.

One of the important characteristic of the survey is that it records cash for equity investments as the cash is actually received by the company (also called a tranch) as opposed to when financing is committed (often referred to as a "term sheet") to a company. This is particularly useful for the purpose of this paper, since it measures the actual cash investment rather than mere commitment to invest. Accordingly, the amount reported in a given quarter may be less that the total round amount committed to the company at the time when the round of financing closed.

Table 1 presents the yearly data for U.S. venture capital investment and number of deals for the ten years spanning from 1995 to 2005. Figures 1 and 2 present the data graphically. One notes that for all the measures presented in Table 1, i.e., in terms of number of deals per year, average investment per deal, and in total investment, the numbers are maximized in the year 2000. In other words, the effect of the bursting of the venture capital bubble is still present after more than five years.

Table 2 explores the frequency of deals for each of the nineteen regions in terms of both frequency and proportion of total deals. The regions are: Alaska/Hawaii/Puerto Rico, Colorado, DC/Metroplex, LA/Orange County, Midwest, New England, New York Metro, North Central, Northwest, Philadelphia Metro, Sacramento/Northern California, San Diego, Silicon Valley, South Central, Southeast, Southwest, Texas, and Upstate New York. Appendix A provides detailed definitions of the geographical regions. One notes that the frequency of deals in Silicon Valley is higher than any other region of the United States, such as the Southeast, Southwest, Northwest, and New England. Figure 3 presents the data for total investment in venture capital by regions for 1995 – 2006. The interesting feature of the figure is the fact that throughout the period, regions have not

change their ranking with respect to the amount of venture capital invested in the region. Regions who received a large proportion of investment in 1995 continue to receive a relatively higher proportion of total venture capital investment. This feature of the data supports the importance of history and increasing returns emphasized by the international trade and industrial organization literature discussed in the literature review section.

Table 3 presents the data separated into seventeen industries by both frequency on its own and frequency expressed as a percentage of total deals. These industries include: Biotechnology, Business Products and Services, Computers and Peripherals, Consumer Products and Services, Electronics and Instrumentation, Financial Services, Healthcare Services, Industrial and Energy, Information Technology Services, Media and Entertainment, Medical Devices and Equipment, Networking and Equipment, Retailing and Distribution, Semiconductors, Software, Telecommunications. Appendix B defines the industry classifications in more detail. One notes that software deals accounted for the greatest proportion of deals of any industry, followed closely by the telecommunications industry.

IV. Empirical Results

Table 4 presents the summary statistics of the data used in the analysis. The data consist of 8,270 deals. Mean investment is about 41 million dollars. The maximum amount invested in a single deal is about 2.65 billion dollars, with a standard deviation of about 104 million dollars. The table also provides summary statistics for the macroeconomics variables: Gross Domestic Product (GDP), overnight interest rate, 3, 5 and 10-year interest rates (IR3, IR5, and IR10, respectively).

Table 5 presents the Pearson Correlation Coefficients and their corresponding significant values for the variables in the study. One notes that investment is highly correlated with the number of deals with a correlation coefficient of 0.86. GDP is negatively correlated with all interest rates. As one may expect, the very short run overnight interest rate is more correlated with IR3 than IR5 and IR10 (0.94, 0.91, and 0.82, respectively). The correlation between IR3 and IR5 is high.

Table 6 presents the regression results for the natural log of venture capital investment as a function of the date of the transaction, number of deals, the sixteen dummy variables for the different industries, with the biotech industry as industry number 1, the eighteen dummies for the different regions, with Alaska/Hawaii/Puerto Rico as the omitted regional variable. In addition the estimated equation includes the macroeconomic variables, GDP and four measures of interest rates. The four measures are: the overnight interest rate, the three, the five, and the ten years interest rate. The number of observations for this regression equation is 8,196.

As shown in Table 6, the Adjusted R^2 is equal to 0.45. As expected an increase in the number of deals increases the amount of money invested. Since the dummy industries are measured relative to the omitted industry, the relevant statistics are given by the last column in the table denoting the probability of the coefficients being statistically significant. Except for the software and telecommunication industries, all other coefficients are highly statistically significant with the probability of the t-statistic values being less than 0.0001 (except for the networking and equipment sector, with a

significant value of 0.0169). With regards to the regions, all regional coefficients are statistically significant except the one for Upstate New York.

Regarding the macroeconomic variables presented in Table 6, as expected, all else being equal, an increase in GDP raises investment in venture capital. Interestingly, the effects of the interest rates are all statistically significant. While one expects all these coefficients to be negative, both the overnight interest rate and the 5-year interest rate are positively affecting the amount of venture capital investment. Whereas the coefficient on the overnight interest rate is relatively very small and thus indicates that venture capital investment is only marginally affected, the coefficient for the 5-year interest rate is positive. However, if one adds the yearly 3three, five and ten interest rates,one gets as expected a statistically significant negative coefficient of -0.26.

Table 7 presents a similar equation to the one presented in Table 6, but for the dependent variable being the natural log of *real* investment. The results are practically the same, with an Adjusted R^2 at 0.44 compared with 0.45 in Table 6.

Table 6 and Table 7 show that both location and industry are important when it comes to venture capital investment.

V. Conclusion

The paper investigates investment activity of venture capital in the United States for the years 1996 through 2005, stratified by both locations and industries. The statistical results confirm the importance of both regions and industries in explaining the natural log of both nominal and real investment in venture capital. Thus, bcation and industry factors are both important when applied to venture capital investment.

Table 1: US Venture Capital Investment and Number of Deals by Year

Company Disbursement Year	Number of Deal	Avg. per Deal (USD Mil)	Sum Investment (USD Mil)
1996	2469	4.36	10762.3
1997	3080	4.74	14591.99
1998	3550	5.84	20718.89
1999	5396	9.91	53487.98
2000	7812	13.36	104379.88
2001	4451	9.11	40537.78
2002	3053	7.11	21692.68
2003	2876	6.82	19613.81
2004	2991	7.28	21768.86
2005	3027	7.35	22261.59

Table 1 presents the yearly data for U.S. venture capital investment and number of deals for the years 1995-2005. Figures 1 and 2 present the data graphically. One notes that for all the measures presented in Table 1, i.e., in terms of number of deals per year, average investment per deal, and in total investment, the numbers are maximized in the year 2000.

Table 2: Number of Deals by Regions, 1995 - 2005

Region	Region	Frequency	Percent
1	Alaska, Hawaii, and Puerto Rico	57	0.69
2	Colorado	458	5.54
3	DC Metroplex	522	6.31
4	LA Orange County	599	7.24
5	Midwest	604	7.3
6	New England	667	8.07
7	North Central	461	5.57
8	Northwest	524	6.34
9	NY Metro	599	7.24
10	Philadelphia Metro	457	5.53
11	Sacramento/ N. Cali	149	1.8
12	San Diego	443	5.36
13	Silicon Valley	693	8.38
14	South Central	178	2.15
15	Southeast	637	7.7
16	Southwest	386	4.67
17	Texas	579	7
18	Unknown	54	0.65
19	Upstate NY	203	2.45

Table 2 explores the frequency of deals per region as both a frequency and a proportion of total deals across all regions. One notes that the frequency of deals in Silicon Valley is higher than any other region of the United States, including such regions as the Southeast, Southwest, Northwest, and New England.

Table 3: Number of Deals by Industries

Industry	Industry	Frequency	Percent
1	Biotech	607	7.34
2	Business Products and Services	508	6.14
3	Computers and Peripherals	337	4.07
4	Consumer Products and Services	481	5.82
5	Electronics/Instrumentation	365	4.41
6	Financial Services	422	5.1
7	Healthcare Services	460	5.56
8	Industrial/Energy	604	7.3
9	IT Services	532	6.43
10	Media and Entertainment	603	7.29
11	Medical Devices and Equipment	590	7.13
12	Networking and Equipment	496	6
13	Other	92	1.11
14	Retailing/Distribution	404	4.89
15	Semiconductors	450	5.44
16	Software	692	8.37
17	Telecommunications	627	7.58

Table 3 presents the data separated into industry by both frequency and this frequency expressed as a percentage of total deals. One notes that software deals accounted for the greatest proportion of deals of any industry, followed closely by the telecommunications industry.

Table 4: Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
Investment	8270	40980021	104066084	3.39E+11	0	2646998200
Number of Deals	8270	4.90314	8.85257	40549	1	201
GDP	8270	9618	908.12828	79542668	7974	11248
Overnight	8270	4.10828	1.85775	33975	1	6.51
IR3	8270	4.7176	1.48535	39015	1.75	7.25
IR5	8270	5.00045	1.23097	41354	2.52	7.37
IR10	8270	5.34688	0.94147	44219	3.57	7.47

Table 4 presents the summary statistics of the data used in the analysis. The data consist of 8,270 deals. Mean investment is about 41 million dollars. The maximum amount invested in a single deal is about 2.65 billion dollars, with a standard deviation of about 104 million dollars. The table also provides summary statistics for the macroeconomics variables: Gross Domestic Product (GDP), overnight interest rate, 3, 5 and 10-year interest rates (IR3, IR5, and IR10, respectively).

Table 5: Pearson Correlation Coefficients

Pearson Correlation Coefficients, N = 8270
Prob > |r| under H0: Rho=0

	observation	Investment	Number of Deals	GDP	Overnight	IR3	IR5	IR10
observation	1.00	0.04 0.00	0.02 0.09	0.99 <.0001	-0.75 <.0001	-0.78 <.0001	-0.81 <.0001	-0.85 <.0001
Investment	0.04 0.00	1.00	0.86 <.0001	0.07 <.0001	0.10 <.0001	0.09 <.0001	0.08 <.0001	0.06 <.0001
Number of Deals	0.02 0.09	0.86 <.0001	1.00	0.04 0.00	0.06 <.0001	0.06 <.0001	0.06 <.0001	0.04 0.00
GDP	0.99 <.0001	0.07 <.0001	0.04 0.00	1.00	-0.66 <.0001	-0.70 <.0001	-0.74 <.0001	-0.80 <.0001
Overnight	-0.75 <.0001	0.10 <.0001	0.06 <.0001	-0.66 <.0001	1.00	0.94 <.0001	0.91 <.0001	0.82 <.0001
IR3	-0.78 <.0001	0.09 <.0001	0.06 <.0001	-0.70 <.0001	0.94 <.0001	1.00	0.99 <.0001	0.94 <.0001
IR5	-0.81 <.0001	0.08 <.0001	0.06 <.0001	-0.74 <.0001	0.91 <.0001	0.99 <.0001	1.00	0.98 <.
IR10	-0.85 <.0001	0.06 <.0001	0.04 0.00	-0.80 <.0001	0.82 <.0001	0.94 <.0001	0.98 <.0001	1.00

Table 5 presents the Pearson Correlation Coefficients and their corresponding significant values for the variables in the study. One notes that investment is highly correlated with the number of deals with a correlation coefficient of 0.86. GDP is negatively correlated with all interest rates. As one may expect, the very short run overnight interest rate is more correlated with IR3 than IR5 and IR10 (0.94, 0.91, and 0.82, respectively). The correlation between IR3 and IR5 is high.

Table 6: Regression Results for Log Investment in Venture Capital.

Note Industry 1: Biotech, Region 1: Alaska/Hawaii/Puerto Rico (Ak.Hi.Pr)

Dependent Variable: loginvestment1

Number of Observations Read 8270
Number of Observations Used 8196
Number of Observations with Missing Values 74

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	41	12045	293.76917	161.67	<.0001
Error	8154	14816	1.81706		
Corrected Total	8195	26861			

Root MSE 1.34798 R-Square 0.4484
Dependent Mean 16.19245 Adj R-Sq 0.4456
Coeff Var 8.32476

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-18.50115	1.91951	-9.64	<.0001
observation		1	-0.29137	0.02049	-14.22	<.0001
NuofDeals		1	0.06245	0.00219	28.54	<.0001
industry2	Business Products and Services	1	-0.8072	0.08161	-9.89	<.0001
industry3	Computers and Peripherals	1	-1.21176	0.09271	-13.07	<.0001
industry4	Consumer Products and Services	1	-0.97994	0.08324	-11.77	<.0001
industry5	Electronics/Instrumentation	1	-1.55371	0.09057	-17.15	<.0001
industry6	Financial Services	1	-0.88032	0.08621	-10.21	<.0001
industry7	Healthcare Services	1	-0.78237	0.0839	-9.32	<.0001
industry8	Industrial/Energy	1	-0.84119	0.07796	-10.79	<.0001
industry9	IT Services	1	-0.60046	0.08045	-7.46	<.0001
industry10	Media and Entertainment	1	-0.39357	0.07795	-5.05	<.0001
industry11	Medical Devices and Equipment	1	-0.43272	0.07818	-5.54	<.0001
industry12	Networking and Equipment	1	-0.19569	0.08189	-2.39	0.0169
industry13	Other	1	-1.72937	0.15846	-10.91	<.0001
industry14	Retailing/Distribution	1	-1.17774	0.08754	-13.45	<.0001
industry15	Semiconductors	1	-0.67656	0.08434	-8.02	<.0001
industry16	Software	1	0.01843	0.07904	0.23	0.8156
industry17	Telecommunications	1	0.08544	0.07711	1.11	0.2679
region2	Colorado	1	1.46418	0.19306	7.58	<.0001
region3	DC Metroplex	1	1.67406	0.19187	8.73	<.0001
region4	LA Orange County	1	2.14466	0.19079	11.24	<.0001
region5	Midwest	1	1.84469	0.19069	9.67	<.0001
region6	New England	1	2.39977	0.19052	12.6	<.0001
region7	North Central	1	1.16961	0.19304	6.06	<.0001

region8	Northwest	1	1.74128	0.19176	9.08	<.0001
region9	NY Metro	1	2.19618	0.19086	11.51	<.0001
region10	Philadelphia Metro	1	1.33033	0.19319	6.89	<.0001
region11	Sacramento/ N. Cali	1	0.63132	0.21383	2.95	0.0032
region12	San Diego	1	1.67	0.19351	8.63	<.0001
region13	Silicon Valley	1	2.77531	0.19303	14.38	<.0001
region14	South Central	1	0.78864	0.2087	3.78	0.0002
region15	Southeast	1	2.16623	0.19051	11.37	<.0001
region16	Southwest	1	1.14336	0.19506	5.86	<.0001
region17	Texas	1	1.96565	0.19112	10.29	<.0001
region18	Unknown	1	-0.23733	0.26612	-0.89	0.3725
region19	Upstate NY	1	0.33727	0.20577	1.64	0.1012
GDP		1	0.0041	0.000247	16.57	<.0001
Overnight		1	0.31419	0.03906	8.04	<.0001
IR3		1	-2.6876	0.19494	-13.79	<.0001
IR5		1	3.52341	0.34358	10.25	<.0001
IR10		1	-1.09944	0.2129	-5.16	<.0001

Table 7: Regression Results for Log Real Investment in Venture Capital

Dependent Variable: Lrealinvestment1

Number of Observations Read	8270
Number of Observations Used	8196
Number of Observations with Missing Values	74

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	41	11862	289.32441	159.20	<.0001
Error	8154	14819	1.81735		
Corrected Total	8195	26681			

Root MSE	1.34809	R-Square	0.4446
Dependent Mean	11.04524	Adj R-Sq	0.4418
Coeff Var	12.20519		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-23.87527	1.91967	-12.44	<.0001
observation		1	-0.30245	0.0205	-14.76	<.0001
NuofDeals		1	0.06246	0.00219	28.55	<.0001
industry2	Business Products and Services	1	-0.80706	0.08162	-9.89	<.0001
industry3	Computers and Peripherals	1	-1.21177	0.09272	-13.07	<.0001
industry4	Consumer Products and Services	1	-0.97995	0.08325	-11.77	<.0001
industry5	Electronics/Instrumentation	1	-1.55357	0.09058	-17.15	<.0001
industry6	Financial Services	1	-0.88015	0.08622	-10.21	<.0001
industry7	Healthcare Services	1	-0.78247	0.08391	-9.33	<.0001
industry8	Industrial/Energy	1	-0.84115	0.07797	-10.79	<.0001
industry9	IT Services	1	-0.60043	0.08045	-7.46	<.0001
industry10	Media and Entertainment	1	-0.39353	0.07796	-5.05	<.0001
industry11	Medical Devices and Equipment	1	-0.43265	0.07818	-5.53	<.0001
industry12	Networking and Equipment	1	-0.19564	0.08189	-2.39	0.0169
industry13	Other	1	-1.72963	0.15847	-10.91	<.0001
industry14	Retailing/Distribution	1	-1.17761	0.08755	-13.45	<.0001
industry15	Semiconductors	1	-0.67637	0.08435	-8.02	<.0001
industry16	Software	1	0.01831	0.07904	0.23	0.8168
industry17	Telecommunications	1	0.08543	0.07711	1.11	0.268
region2	Colorado	1	1.46423	0.19308	7.58	<.0001
region3	DC Metroplex	1	1.67422	0.19188	8.73	<.0001
region4	LA Orange County	1	2.14468	0.19081	11.24	<.0001
region5	Midwest	1	1.84479	0.19071	9.67	<.0001
region6	New England	1	2.39976	0.19054	12.59	<.0001
region7	North Central	1	1.16973	0.19306	6.06	<.0001
region8	Northwest	1	1.7414	0.19177	9.08	<.0001
region9	NY Metro	1	2.19624	0.19087	11.51	<.0001
region10	Philadelphia Metro	1	1.33036	0.1932	6.89	<.0001

region11	Sacramento/ N. Cali	1	0.63153	0.21385	2.95	0.0032
region12	San Diego	1	1.67002	0.19352	8.63	<.0001
region13	Silicon Valley	1	2.77522	0.19305	14.38	<.0001
region14	South Central	1	0.78874	0.20871	3.78	0.0002
region15	Southeast	1	2.16638	0.19052	11.37	<.0001
region16	Southwest	1	1.1435	0.19508	5.86	<.0001
region17	Texas	1	1.96567	0.19113	10.28	<.0001
region18	Unknown	1	-0.23755	0.26614	-0.89	0.3721
region19	Upstate NY	1	0.33725	0.20578	1.64	0.1013
GDP		1	0.00415	0.000247	16.79	<.0001
Overnight		1	0.3083	0.03906	7.89	<.0001
IR3		1	-2.6896	0.19495	-13.8	<.0001
IR5		1	3.53041	0.34361	10.27	<.0001
IR10		1	-1.10999	0.21292	-5.21	<.0001

Figure 1: Total Venture Capital Activity in the United States 1995 - 2005

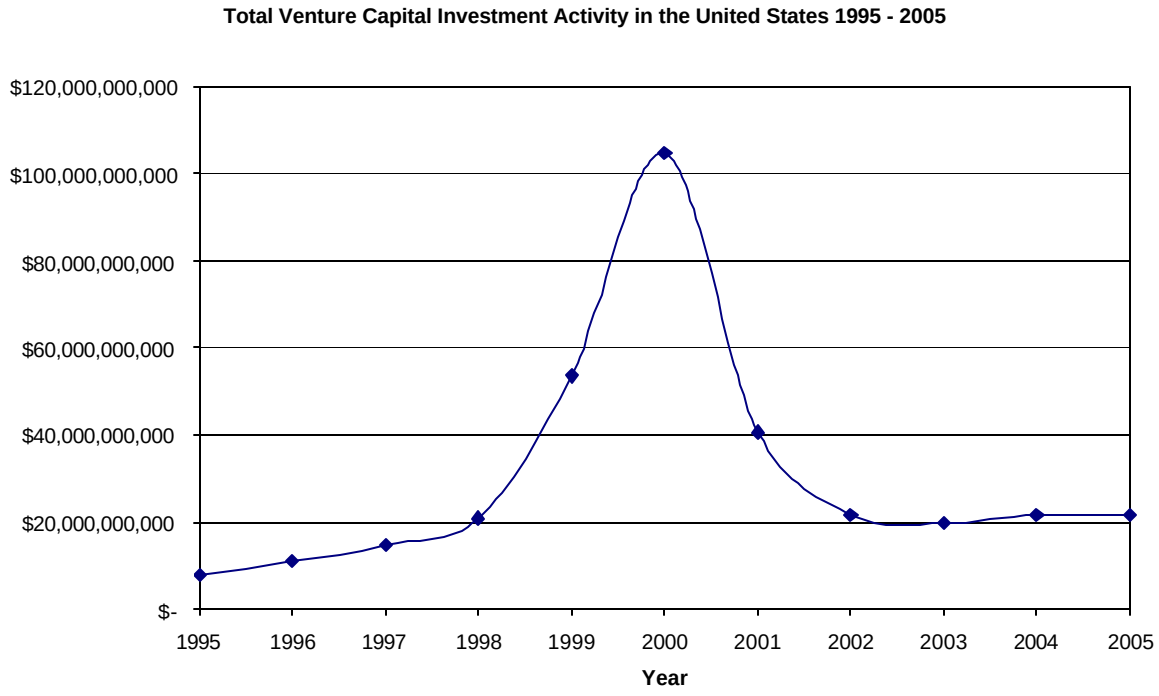


Figure 2: Total Number of Deals in Venture Capital Investment in the United States 1995 - 2005

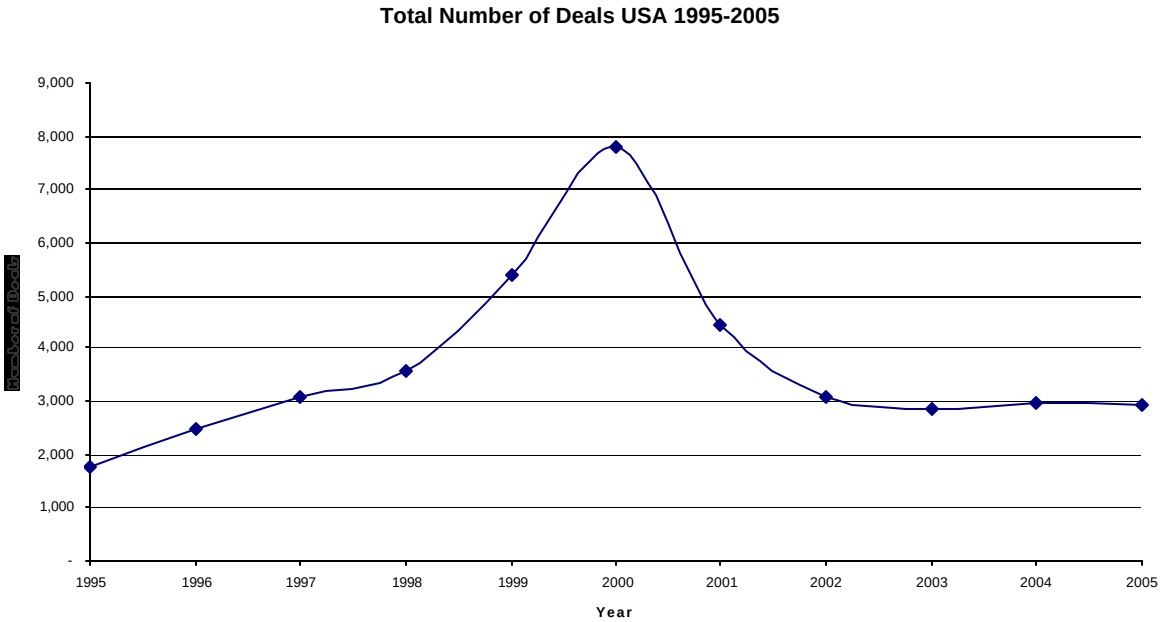
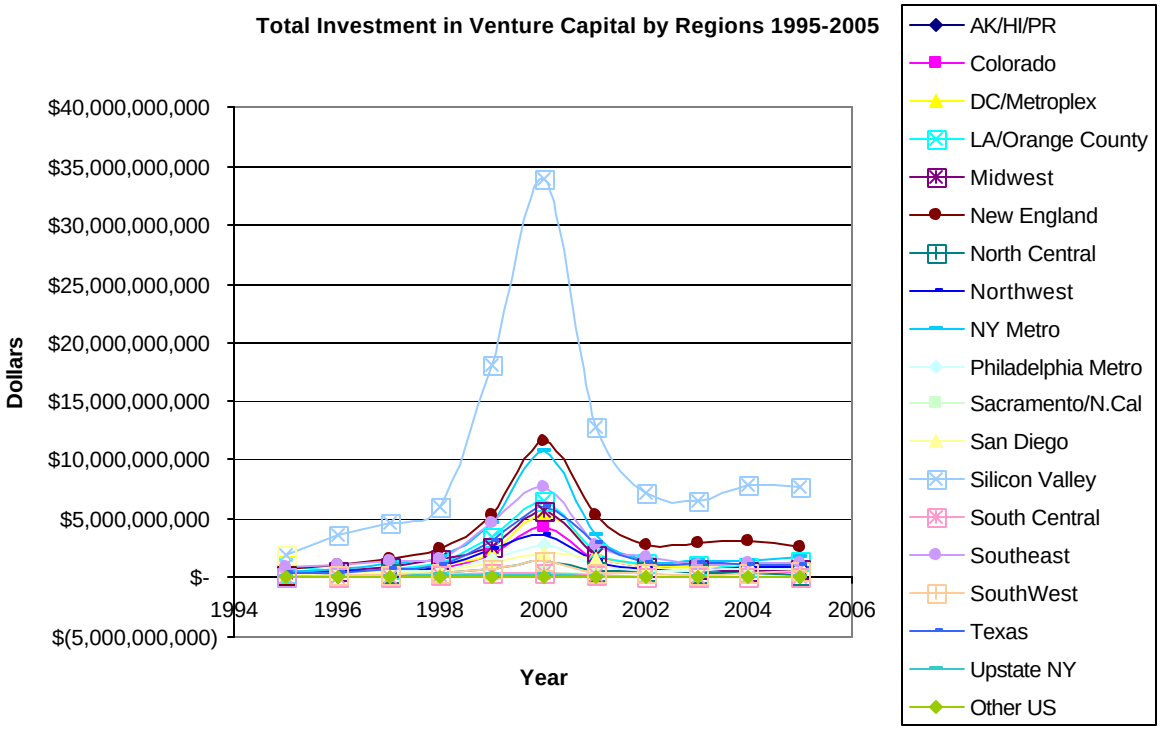


Figure 3: Total Investment in Venture Capital by Regions 1995 - 2006



Appendix A: Geographical Definitions

The Geographical Classifications used in the study are as follows:

Alaska/Hawaii/Puerto Rico: Alaska, Hawaii, and Puerto Rico
Colorado: The state of Colorado
DC/Metroplex: Washington, D.C., Virginia, West Virginia, and Maryland
LA/Orange County: Los Angeles, Ventura, Orange, and Riverside Counties (i.e., southern California, except San Diego)
Midwest: Illinois, Missouri, Indiana, Kentucky, Ohio, Michigan, and western Pennsylvania
New England: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and parts of Connecticut (excluding Fairfield county).
New York Metro: Metropolitan NY area, northern New Jersey, and Fairfield County, Connecticut.
North Central: Minnesota, Iowa, Wisconsin, North Dakota, South Dakota, and Nebraska.
Northwest: Washington, Oregon, Idaho, Montana, and Wyoming
Philadelphia Metro: Eastern Pennsylvania, southern New Jersey, and Delaware
Sacramento/Northern California: Northeastern California
San Diego; San Diego area
Silicon Valley: Northern California, bay area and coastline
South Central: Kansas, Oklahoma, Arkansas, and Louisiana
Southeast: Alabama, Florida, Georgia, Mississippi, Tennessee, South Carolina, and North Carolina.
Southwest: Utah, Arizona, New Mexico, and Nevada
Texas: The state of Texas
Upstate New York: Northern New York State, except Metropolitan New York City area

Appendix B: Industry Definitions

Biotechnology Focuses research on technology that promotes drug development and prevents or treats diseases through a greater understanding of organisms. This includes products treating humans and animals along with products and services such as biosensors, biotechnology equipment, and pharmaceuticals.

Business Products and Services A product or service of one company exercised for the benefit of another company, such as advertising, consulting, and engineering services. This category also includes distributors, importers, and wholesalers.

Computers and Peripherals Technological manufacturers and distributors of PCs, mainframes, servers, Personal Digital Assistants (PDAs), printers, storage devices, monitors, and memory cards. These companies also provide digital imaging and graphics services and equipment such as scanning hardware, graphics video cards and plotters. Integrated turnkey systems and solutions are also included in this category.

Consumer Products and Services Offers products or services to the consumer society such as food, clothing, and information technology support.

Electronics/Instrumentation Includes specific components of the greater electronic item, including lasers, power supplies, and power supplies. This category also is comprised of business instruments such as photocopiers, calculators, and alarm systems.

Financial Services Services of financial advising and planning in areas such as banking, real estate, brokerage services, and financial planning.

Healthcare Services Services provided to in-patient, out-patient and health-care facilities such as hospitals, clinics, nursing facilities, child care and emergency care.

Industrial/Energy Producers and suppliers of energy, chemicals, and materials, industrial automation companies and oil and gas exploration companies. Also included are environmental, agricultural, transportation, manufacturing, construction and utility-related products and services.

IT Services Providers of technological services to businesses and consumers in areas such as computer repair, software consulting, disaster recovery, web design and data input and processing.

Media and Entertainment Creators of products or providers of services used for the entertainment of consumers, such as movies, music, and consumer electronics. The category also includes online providers of medical, news, education, and legal content.

Medical Devices and Equipment Manufacturers of medical instruments such as diagnostic equipment, therapeutic devices and other health related products. Includes medical monitoring equipment, handicap aids, reading glasses and contact lenses.

Networking and Equipment Providers of data communication products and services. Includes WANs, LANs, switches, hubs, routers, couplers, and network management products, components and systems.

Retailing/Distribution Firms that produce and distribute consumer goods and services, including drug stores, clothing and accessories retailers, computer stores and book stores. These retail firms also include online distributors of goods and services.

Semiconductors Firms that design, develop, or manufacture semiconductor chips and microprocessors or related equipment, including companies that test or package integrated circuits.

Software Producers of software applications created for systems, graphics, communications and networking, security, inventory, home use, educational, or recreational.

Telecommunications Companies focusing on the transmission of voice and data, including long distance providers, local exchange carriers, and wireless communications services and components.

Other Firms whose classification does not fall into any other group.

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