Testimony of

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to the

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Texas House of Representatives
Irving, Texas

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Scope of Testimony

The committee has invited testimony on a number of questions. I will respond to a portion of the following question:

> "Examine the current investment climate and resources available to businesses in Texas. Analyze the effectiveness of existing programs and whether current investment tools are bringing new businesses and new jobs to Texas, and determine whether the current programs are helping established businesses in Texas create jobs. Identify barriers to investment opportunities faced by businesses and investors. This analysis should include but not be limited to: angel investing, crowd-funding, micro-lending, private equity, venture capital, and mezzanine investing. Make appropriate recommendations to ensure investment tools in Texas continue to evolve to help bring jobs to Texas and meet the needs of new and existing businesses in Texas."

Specifically, I will respond to the portion of this question that concerns entrepreneurship, as this is my primary area of expertise. There are many classes of activity referred to as entrepreneurship. For the purpose of this testimony, I will use the term "entrepreneurship" to refer to the form of *high-growth, high-technology entrepreneurship* that is associated with angel investment and venture capital.

If the committee wishes, I could also provide policy-relevant information on small business entrepreneurship, and other forms of entrepreneurship, as well as on innovation by incumbent firms, independent inventors, and other firms or institutions. The McNair Center at Rice University's Baker Institute is actively developing policy-relevant research in these areas.

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Entrepreneurship, Texas, and Economic Growth

In the last 25 years, entrepreneurship has emerged as one of the most important drivers of economic growth and prosperity. The United States is the world leader in the practice of entrepreneurship, and the portion of U.S. economic activity attributable to it is currently doubling every 10 years.

The economic gains from entrepreneurship are not equally distributed across all states. California, Massachusetts, and New York reap the lion's share. To some extent there is a beggar-thy-neighbour effect: entrepreneurs and entrepreneurship resources flow from other states to these states. This is because there are strong agglomeration effects in entrepreneurship ecosystems.

An entrepreneurship ecosystem is an urban phenomenon and consists of:

- Entrepreneurs (current, potential, and former).
- Capital providers using appropriate investment vehicles and methodologies (particularly angel investors and venture capitalists, but also venture banks and other institutions).
- Training providers who understand the development methodologies, investment vehicles, business models, and other idiosyncratic needs of entrepreneurs.
- Resource providers—such as flexible co-working office space providers—who lower the barriers to experimentation and scaling for start-up firms.
- Service providers who understand the needs of ecosystem participants (lawyers, accountants, human resource specialists, marketing firms, etc. with appropriate entrepreneurship expertise).
- Upstream technology and human resource providers (especially research universities, technology firms, private research organizations, and government laboratories).
- Downstream technology, product, and service users (including firms that are potential acquirers or customers, investment bankers to support initial public offerings, technology or business partners for start-up firms, and so forth).

Venture capitalists are a necessary component of these ecosystems—venture capital cannot exist without entrepreneurs, and vice versa—so the extent and nature of venture capital investment provide proxy measures for the overall ecosystem's activity.

Texas is the second-largest U.S. state by population (with 27.5m people), the second-largest by Gross Domestic Product (with $1.65t), and currently ranks fourth in venture capital investment (with $1.17b per year). However, Texas will almost surely slip to sixth place in venture capital investment before the end of 2016 (see Egan and Garber, 2016). While the average U.S. state saw its venture capital investment grow by over 100% over the last decade, Texas saw its venture capital decline by 19%. Absent some reversal in trends, Texas' venture capital rankings will continue to fall from there and the state will likely not be a top 10 venture capital jurisdiction by 2025.

An entrepreneurship ecosystem needs to reach approximately 40-50 start-ups per year securing venture capital, with the right ecosystem components participating appropriately before it can achieve a self-sustaining virtuous cycle. In Texas, only one urban area, Austin, is (just) at this level. Houston and Dallas have essentially flatlined at 10 deals a year. Despite having the Texas Medical Center, the largest medical center in the world, Houston produced just 26 life science start-ups in the last decade. Boston routinely achieves this volume every two to three months.

If Texas could establish vibrant entrepreneurship ecosystems in Houston and Dallas (and perhaps a small life science-based entrepreneurship cluster in San Antonio, too), and support and enhance Austin's current entrepreneurship ecosystem, the state could reap enormous economic benefits. In addition to growing Texas' economy, it would diversify Texas' economy—making it more robust to macro-economic and commodity shocks—and add high-skill jobs.

Illinois provides a useful comparison for Texas. Chicago is of a similar size to Houston, and until recently its venture performance was anemic. In the last decade, however, Illinois' venture capital industry grew by 175% (with most of this growth coming since 2009).

I have estimated the likely GDP growth that could result from the birth, funding, and growth of start-up firms if Texas could manage a transformation similar to that of Illinois: I suggest that GDP growth of around 0.3% over the next five years is the upper end of what is realistically achievable. This would almost halve Texas' projected drop in GDP growth from 3.2% today to 2.4% by 2020. However, entrepreneurship ecosystems include upstream and downstream firms and organizations, as well as start-up firms themselves. The total economic growth that would result from successful start-up ecosystems in Texas could therefore be substantially greater.

Policy for Texas

The McNair Center at Rice University's Baker Institute has been reviewing entrepreneurship ecosystems in Texas, with a view to making policy recommendations at both the state and municipal levels, since its inception in August 2015. We do not as yet have a complete picture. We have strong evidence that Texas is failing with regards to entrepreneurship, and are working through a number of hypotheses as to the root causes.

One of our tentative conclusions is that Texas simply does not have the scale and scope of incentivizing policy that is present in many of the states that have been successful in developing strong entrepreneurship ecosystems. The few directly relevant policy initiatives that were tried, including the Texas Emerging Technology Fund and the Texas Certified Capital Company Program, had design and execution issues. Adjacent policy initiatives, like the Texas Enterprise Fund and Chapter 313, lack scale and/or focused application on entrepreneurship.

As it stands, Texas appears to have little, if any, remaining effective incentivizing policy of any kind that is directly relevant to entrepreneurship. Moreover, successful entrepreneurship ecosystems in other states can attract entrepreneurs through the benefits that arise from agglomeration; Texas doesn't face a level playing field. If Texas wants to succeed in creating

entrepreneurship ecosystems it will have to offer not only the best of the incentivizing policy seen elsewhere, but it will also have to offer it on a larger scale until the playing field levels out.

Texas faces two unusual challenges in designing relevant incentive systems: Texas does not have a corporate income tax from which it could offer deductions, and Texas has a strong preference for low- or no-cost initiatives and a reliance on free markets.

Harnessing free markets in entrepreneurship is all important—some government (and private) interventions into entrepreneurship ecosystems are doomed to failure because they obviate the power of free markets and adopt command-and-control policies. Examples include "picking winners" and shutting out competition. But Texas also needs to recognize the basic economics here: entrepreneurship and innovation are characterized by information asymmetries and positive externalities. These are two major causes of market failure and both of them lead to societally inefficient private underinvestment. If Texas wants to harness the power of free markets, its government must be prepared to invest to build the state's future.

Ideally, the state of Texas would adopt a holistic set of policies to advance each of the components of an entrepreneurship ecosystem individually but so that they could function together as a whole and be greater than the sum of their parts. However, I recognize that many of the policy components that this would entail would be beyond the call for testimony and may lie outside of the scope of the Investment and Financial Services Committee.

With regards to policy that affects capital investment, there have been many state and federal level programs, in the U.S. and internationally, that have been tried. There is a fairly large body of academic research, to which I have contributed (see Brander, Egan and Hellmann, 2010), that has studied these programs. I would be happy to assist the committee in understanding the best practices in these programs and the factors that lead them to succeed or fail, or to refer the committee to other experts who can assist you. Many of the best programs simply leverage the investments made in the private sector. Avoiding government intervention into the selection and treatment of start-up firms is often a determinant of success.

It is also important to match an investment program to the state's philosophy and policy methodologies. I would therefore suggest that you find experts in this area that you can engage in a dialogue. The McNair Center at Rice University's Baker Institute will continue to devote approximately one-third of its resources to understanding entrepreneurship in Texas (and particularly in Houston) for the foreseeable future. As its understanding of the issues mature, the Center will naturally have policy recommendations to share with you. However, the scale of the endeavor before you is immense and you will need more than the Center can provide alone. I will be happy to coordinate the McNair Center's efforts with those of other experts.

In the meantime, I would like to take this opportunity to suggest that one costless policy initiative that could offer substantial returns. An economically targeted initiative would encourage state trust funds to invest in creating a state venture capital industry. There are currently more than $200b in state trust funds. These funds already invest in venture capital but almost exclusively in other states. These funds are allowed to give tie-breaker preference to a

fund that would generate economic gains for Texas. However, there is no systematic disclosure or promotion of this tie-breaker preference.

State trust funds should not invest in underperforming venture funds; they should only invest to make returns. There is persistence of returns in the venture capital industry (see Kaplan and Schoar, 2005)—this means that the best funds make the best returns year-on-year. Texas state trust funds should therefore invest only in the top funds if they can. However, with a tie-breaker preference, some of these top funds may be incentivized to open an office in Texas. To begin with, we should not expect that these Texas offices will make any investments in Texas companies (or these funds would have opened an office here anyway), but the presence of a top fund should make it easier for the best of the next generation of Texas-born start-ups to stay in Texas.

References

Brander, James A., Edward J. Egan, Thomas F. Hellmann. 2010. "Government Sponsored versus Private Venture Capital: Canadian Evidence," in *International Differences in Entrepreneurship*, Lerner and Schoar.

Egan, Edward J. and Rachel L. Garber. 2016. "The State of Venture Capital in Texas," Issue Brief no. 03.07.16. Rice University's Baker Institute for Public Policy, Houston, Texas.

Kaplan, Steven N., and Antoinette Schoar. 2005. "Private equity performance: Returns, persistence, and capital flows." *The Journal of Finance* 60, no. 4: 1791-1823.