



POLICY DISCUSSION PAPERS

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This *Policy Discussion Paper* summarizes papers that were presented at the Workshop on Entrepreneurial Finance, which was held March 12–13, 2009, at the Federal Reserve Bank of Cleveland. Researchers presented new empirical research that exploits data sets on entrepreneurial activity that are based on broad and representative data samples. Papers in the workshop focused primarily on analyses of the sources and structure of start-up finance, including the importance of bank lending, venture capital, angel investors, and owner equity.

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Introduction

In March of 2009, the Federal Reserve Bank of Cleveland and the Kauffman Foundation jointly hosted a workshop on entrepreneurial finance that brought together scholars in the field. The goal of the workshop was to present new empirical research that exploits data sets on entrepreneurial activity that are based on broad and representative data samples. The research presented employed data from relatively new survey instruments, such as the Kauffman Firm Survey, as well as data from well-established programs, such as the Survey of Small Business Finances. Additionally, some of the data sets highlighted are in the public domain, while others are available to researchers only through restricted access. It was clear from the workshop presentations that both privately and publicly sponsored data are valuable sources of information on entrepreneurial activity.

Papers in the workshop focused primarily on analyses of the sources and structure of start-up finance, including the importance of bank lending, venture capital, angel investors, and owner equity. While many of the studies focused on the analysis of U.S. data, several papers offered international perspectives. In addition, several papers emphasized differences in the financing structure of new firms across demographic groups.

This *Policy Discussion Paper* provides a brief summary from each paper presented at the workshop. The overview is organized broadly into five themes: bank financing; topics in international entrepreneurial finance; demographics and entrepreneurial financing; industry and institutional settings; and angel investors.

Bank Financing

Alicia M. Robb and David T. Robinson investigate the capital structure choices that firms make in their initial year of operation in their paper “The Capital Structure Decisions of New Firms.” Using restricted-access data from the Kauffman Firm Survey, they find that, contrary to many accounts of start-up activity, firms rely heavily on external debt sources such as bank financing and less extensively on friends- and family-based funding sources. This finding is robust to controls for credit quality, industry, and business owner characteristics. It is a feature both of the cross-section of firms at their founding date and of the time-series of firm financing decisions. Formal credit complements other sources of funding, rather than substituting for it. The heavy reliance on external debt underscores the importance of well-functioning credit markets for the success of nascent business activity.

The paper “Information Asymmetries between Lenders and the Availability of Competitive Outside Offers” by Lamont K. Black examines the effect of information asymmetries between lenders on the availability of competitive outside loan offers. Existing lenders to firms tend to have private information about firms that is not available to other potential lenders, which creates an information asymmetry between “inside” lenders (those with more information about a firm) and “outside” lenders (those with less). Due to this information disadvantage, outside lenders face

an adverse selection problem. The paper solves a benchmark model of information asymmetries in lending and finds that an increase in firm transparency causes the outsider to win more “good” firms. This reflects the effect of better public information. The outsider also wins fewer bad firms because it faces less of a “winner’s curse.” The total effect on outside lending depends on the net of these two effects. An analytical solution shows that an increase in firm transparency leads to a decrease in the likelihood of a firm receiving a competitive outside loan offer. The model’s main prediction is tested using a sample of small business firms that borrow either from an existing lender or a new lender. The evidence generally suggests that transparent firms are less likely to borrow from a new lender.

In “Small and Medium-Sized Enterprises, Bank Relationship Strength, and the Use of Venture Capital,” Allen N. Berger and Klaus Schaeck use data on small and medium-sized enterprises in Italy, Germany, and the United Kingdom to analyze bank–firm relationships and how these relationships influence a firm’s use of venture capital. They examine whether firms substitute venture capital for multiple bank relationships to avoid the rent-extracting behavior of the main bank. The empirical results are consistent with this hypothesis and robust to changes in specification, estimation method, and sample. The paper uses matching methods to explore whether firm performance differs between firms that use venture capital and those firms that rely on multiple banking relationships. They report that the use of venture capital positively affects firm performance in terms of growth and R&D spending; however, such performance effects do not arise from multiple banking relationships.

Topics in International Entrepreneurial Finance

Larry W. Chavis, Leora F. Klapper, and Inessa Love study the use of different financing sources for new and young firms in the paper “Entrepreneurial Finance around the World: The Impact of the Business Environment on Financing Constraints.” They use a unique data set of over 70,000 firms (most of which are small) in over 100 countries from the World Bank Enterprise Surveys. The authors find that, in all countries, younger firms rely less on bank financing and more on informal financing. Moreover, younger firms have better access to bank finance in countries with stronger rule of law and better credit information, and that the reliance of young firms on informal finance decreases with the availability of credit information. Overall, the results suggest that improvements to the legal environment and availability of credit information are disproportionately beneficial for promoting access to formal finance by young firms.

In the “Determinants of Start-up Firm External Financing Worldwide,” John R. Nofsinger and Weicheng Wang report on the determinants of the initial start-up financing of entrepreneurial firms in 27 countries. Their study looks at how institutional investors and informal investors respond to product type (new vs. existing product), production technology (new vs. existing technology), and entrepreneur experience when providing finance to start-up firms. Using data from the Global Entrepreneurship Monitor survey, the authors’ findings suggest that informal

investors prefer financing new firms that have new products, whereas institutional investors are more willing to provide finance to firms with existing products and to more-experienced entrepreneurs.

Demographics and Entrepreneurial Financing

Alicia M. Robb, Robert W. Fairlie, and David T. Robinson use a new panel data set from the Kauffman Firm Survey to examine racial differences in the incidence and determinants of financial capital use among young firms in their paper “Financial Capital Injections among New Black and White Business Ventures: Evidence from the Kauffman Firm Survey.” Looking across all firms, the authors find a heavy reliance on owner’s equity at startup that declines substantially in subsequent years. Reliance on external debt, however, does not decline as the startup ages. The authors report that black-owned businesses face persistent difficulty in accessing external capital markets. These businesses rely much more on owner equity than do white-owned ones, indicating that black-owned businesses face more difficulty in raising external capital. Direct evidence on average levels of external capital reveals large differences between blacks and whites. Regression analyses indicate that racial disparities in the amounts and types of early financing between blacks and whites do not entirely disappear after controlling for differences in credit quality, human capital, and firm characteristics. Blinder-Oaxaca decomposition estimates identify several factors contributing to lower average capital injections for black-owned businesses. The most important factor contributing to racial differences in financing levels are credit scores, especially for financial injections in the years following startup. Lower levels of start-up capital and initial sales are also found to be associated with lower levels of capital use in the two years after startup for black-owned businesses.

In “Gender and the Availability of Credit to Privately Held Firms: Evidence from the Surveys of Small Business Finances,” Rebel A. Cole and Hamid Mehran analyze differences in the availability of credit between male- and female-owned firms. Using data from the nationally representative Surveys of Small Business Finances, which span a period of 16 years, the authors first document a series of empirical regularities in differences between male-owned and female-owned firms. Female-owned firms are significantly smaller as measured by sales, assets, and employment; younger as measured by firm age; more likely to be organized as proprietorship and less likely to be organized as corporations; and have fewer and shorter banking relationships. Female owners are younger, less experienced, and less educated. Comparing across groups, there appears to be some difference in the availability of credit to male- and female-owned firms. Female-owned firms are more likely to be credit-constrained because they are more likely to be discouraged from applying for credit but not more likely to be denied credit when they apply. However, these differences are not statistically significant in a multivariate setting, when controls for additional firm and owner characteristics are included in the statistical model.

Industry and Institutional Settings

The paper “Does Debtor Protection Really Protect Debtors? Evidence from the Small Business Credit Market” by Allen N. Berger, Geraldo Cerqueiro, and María Fabiana Penas studies how different levels of debtor protection across U.S. states affect small firms’ access to credit, as well as the price and non-price terms of their loans. The research uses data from the Survey of Small Business Finance. They find that unlimited liability small businesses (sole proprietorships and most partnerships) have lower access to credit in states with more debtor-friendly bankruptcy laws. In addition, these businesses face harsher loan terms—they are more likely to pledge business collateral, have shorter maturities, and borrow smaller amounts. For limited liability small businesses (corporations and limited liability partnerships), the authors report a reduction in credit availability, but of smaller magnitude, together with an increase in the loan rate. The results also suggest that the personal bankruptcy law disproportionately affects firm owners with low home equity values.

Entrepreneurs rely on a spectrum of financing options for new companies, including informal sources of capital, bank loans, and venture capital. Sheryl Winston Smith looks at the relationship between the type and source of financing and success in high-tech entrepreneurial ventures in “Capital Structure and Entrepreneurial Performance: New Firm Innovation and Survival.” Nascent high-technology ventures are often highly information opaque for outside investors, with consequent implications for the availability of financing in the earliest, riskiest phase. The author uses the Kauffman Firm Survey data set to analyze entrepreneurial performance in relationship to financing and ownership over time, drawing on the data from the baseline survey of new businesses started in 2004 and subsequent follow-up surveys. The paper finds that nascent high-technology firms are more likely to have outside equity than firms in non-high-technology industries. However, with regard to bank loans, high-technology firms do not appear to be more likely to utilize this method of financing than non-high-technology firms.

In “Informal and Early Formal Financial Support in the Business Creation Process: Exploration with PSED II Data Set,” Paul D. Reynolds describes the patterns of financing for a cohort of nascent enterprises in the earliest stages of the business creation process. The data come from the second U.S. Panel Study of Entrepreneurial Dynamics [PSED II]. Firms in the sample are identified after their first efforts to create a business have been initiated but before the new venture has an initial period of profitability. The amount of informal financial support provided to these new ventures before they have been registered as a legal entity is separated from formal equity and debt provided after this event. The author reports that the average amount of informal support is \$48,000, but the distribution is highly skewed with the median amount of informal support being only \$4,300. The average amount of formal financial support is about \$200,000, but again the distribution is highly skewed with the median amount of formal support being \$0. There are some differences related to the sources of informal and formal financial support and the status of

the new ventures in the 12- and 24-month follow-up interviews, but no clear relationship to the amounts of support.

Angel Investors

In “Expected Returns of Angel Investors,” Ramon P. DeGennaro and Gerald P. Dwyer Jr. estimate the expected rate of return to angel investors. The authors note that previous research has calculated realized internal rates of return on angel investments but that internal rates of return are subject to misinterpretation due to nonlinearities and statistical biases. Perhaps more importantly, though, realized internal rates of return do not drive financial decisions. Rather, expected returns drive financial decisions. The authors utilize data from the Angel Investor Performance Project to estimate expected returns. The estimate of an equally weighted average of expected returns is about 58 percent annually. This is comparable to the expected return on venture capital investments.

Jess H. Chua and Zhenyu Wu analyze post-investment involvement of angel investors in the paper “Value Added by Angel Investors through Post-Investment Involvement: Empirical Evidence and Ownership Implications.” While the post-investment involvement for venture capital is well studied, little is known about this activity for angel investors. Using data from the Angel Investor Performance Project, the authors estimate the impact of post-investor involvement of internal rates of return. The findings suggest the post-investment involvement increases the internal rate of return, and the authors posit this is because of mentoring channels versus monitoring channels. The authors recognize, however, that the data contain some important limitations with regard to low response rates and sample selection issues.

Conclusion

The conference covered a broad range of papers in terms of techniques used, questions addressed, data sets queried, and sources of financing investigated. Perhaps the broad message of these papers is that a deeper understanding of the sources and structure of start-up finance is needed.

Papers Presented at the Conference

The Capital Structure Decisions of New Firms

Alicia Robb, UC Santa Cruz

David T. Robinson, Duke University

Information Asymmetries between Lenders and the Availability of Competitive Outside Offers

Lamont Black, Board of Governors, Federal Reserve

Small and Medium-Sized Enterprises, Bank Relationship Strength, and the Use of Venture Capital

Allen S. Berger, University of South Carolina, Wharton Financial Institutions Center and Center, Tilburg University

Klaus Schaeck, University of Wales at Bangor

Entrepreneurial Finance around the World: The Impact of the Business Environment on Financing Constraints

Larry W. Chavis, University of North Carolina at Chapel Hill

Leora F. Klapper, World Bank

Inessa Love, World Bank

Determinants of Start-up Firm External Financing Worldwide

John R. Nofsinger, Washington State University

Weicheng Wang, Washington State University

Financial Capital Injections among New Black and White Business Ventures: Evidence from the Kauffman Survey

Alicia Robb, UC Santa Cruz

Robert W. Fairlie, UC Santa Cruz

David T. Robinson, Duke University

Gender and the Availability of Credit to Privately Held Firms: Evidence from the Surveys of Small Business Finances

Rebel A. Cole, DePaul University

Hamid Mehran, Federal Reserve Bank of New York

Does Debtor Protection Really Protect Debtors? Evidence from the Small Business Credit Market

Allen S. Berger, University of South Carolina, Wharton Financial Institutions Center and Center, Tilburg University

Geraldo Cerqueiro, CentER, Tilburg University

Fabian Penas, CentER, Tilburg University

Capital Structure and Entrepreneurial Performance: New Firm Innovation and Survival

Sheryl Winston Smith, Temple University

Informal and Early Formal Financial Support in the Business Creation Process: Exploration with the PSED II Data Set

Paul Reynolds, George Mason University

Expected Returns of Angel Investors

Ramon P. DeGennaro, University of Tennessee

Gerald P. Dwyer, Federal Reserve Bank of Atlanta

Value Added by Angel Investors through Post-Investment Involvement: Empirical Evidence and Ownership Implications

Jess H. Chua, University of Calgary

Zhenyu Wu, University of Saskatchewan



papers

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