THE INFLUENCE OF VENTURE CAPITAL FUND DIVERSIFICATION ON RISK AND RETURN: THE EFFECTS OF INVESTMENTS IN DIFFERENT FINANCING STAGES, INDUSTRIES, AND REGIONS (INTERACTIVE PAPER)

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Principal Topic

This study is designed to address the question how of venture capital and private equity firms try to manage the trade-off between specialization and diversification in order to manage their portfolio’s risk and return. Specialization creates specific know-how and networks, both necessary to add value to portfolio companies, while diversification mitigates the high risk embraced in entrepreneurial ventures. The existing literature on the topic focuses on diversification in terms of portfolio size or across industries, financing stages, and regions, where only mixed effects on risk mitigation are found. For this reason, we (1) empirically test the effects of fund diversification across industry, financing stage, and geography on fund performance and risk and (2) work out significant differences between early-stage- and later-stage-oriented funds in their approach to the specialization / diversification trade-off.

Methods

We run a series of OLS regressions on a cross-sectional sample of early-stage and later-stage venture capital funds. For our analysis we used proprietary information on 341 funds that we gathered from institutional investors’ data bases. They granted us access to due diligence documents that were provided by the venture capital fund managers and contain information on relevant fund and investments characteristics, including monthly transaction-level cash flows. This allows us to compute each fund’s internal rate of return (IRR) and observe its distribution among portfolio companies to calculated some kind of intra-fund variation (called Quasi-IRR) as measure of risk.

Results and Implications

We find the functions of fund risk and return and investment strategy to be of rather non-linear nature. Our results indicate that the relationships between increasing industry diversification and fund risk and return are concave; those for geographic diversification are convex. While this applies to both, early-stage and later-stage venture capital funds, our findings show a marked difference between early-stage and later-stage venture capital funds with respect to diversification across financing stages: here, the risk and return functions are concave for early-stage oriented funds, while we find the reverse (convex) relationship for later-stage oriented funds. We also find that a given marginal change of diversification in these dimensions of investment strategy has stronger effects on the performance of early-stage focused funds. Our non-linear results suggest that it should be possible, at least conceptually, to identify optimal levels of diversification.

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