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Risk attitudes, wealth and sources of entrepreneurial start-up capital

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ABSTRACT

This paper empirically examines the role of risk attitudes and wealth on financing choices for successful US entrepreneurs. Our approach uses both survey data and data from economics based field experiments, which enables us control for the risk attitudes of entrepreneurs. Empirical findings suggest that lower levels of wealth increase the probability of using a Small Business Innovation Research (SBIR) grant, but lower levels of wealth also reduce the probability of using loan financing. In addition results show that higher levels of risk aversion, but not wealth, increase the probability of financing firm start-ups with earnings from a second job. Overall, findings suggest that both wealth and risk attitudes may play an important role in the financing choice of entrepreneurs.

1. Introduction to risk and financing

Parker (2005) concludes that we know relatively little about the economics underlying the use of alternative forms of start-up capital and their potential to help the entrepreneur by-pass credit rationing. This study directly addresses this issue by empirically examining the role of risk and wealth on the entrepreneur's choice of start-up capital for US entrepreneurs. Experimental methods are useful in this case because they can be designed to capture incentive compatible decision making and elicit risk attitudes of real entrepreneurs, no small feat since few empirical studies on entrepreneurship actually use data from entrepreneurs (Schade, 2005).[1]

Examining the role of risk attitudes is important, because conventional wisdom has long asserted that entrepreneurs are more likely to be risk takers, although there is limited empirical evidence to support this notion.[2] This study is related to a burgeoning literature on the impact of risk on the probability of becoming an entrepreneur, but this study extends our understanding in another direction, that of the role of risk attitudes on the entrepreneurs' choice of financing.[3] Generally speaking it is advantageous to empirically examine the validity of common beliefs whenever possible. One such common

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[1] His survey article notes that only 2 out of 14 empirical studies use actual entrepreneurs as subjects.

[2] For example, Elston et al. (2005) find that entrepreneurs are not-risk lovers, just slightly more risk averse than non-entrepreneurs on average. Palich and Bagby (1995) and Keh et al. (2002) find little or no impact of risk on entrepreneurial decision making.

[3] Studies which examine the role of risk attitudes on entry include: Cramer et al. (2002), Caliendo et al. (2009), Elston and Audretsch (2010), and others.

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belief, as summed up by de Meza and Southey (1996) in arguing about why entrepreneurs have poor access to capital, is that entrepreneurs engage in the maximum use of self-financing as a self-selected group of risk-lovers. On closer examination, however, there is actually little empirical evidence on the degree of self-financing of entrepreneurs and contradictory empirical evidence that entrepreneurs are generally risk-lovers.

Risk attitudes of entrepreneurs have potentially important implications for financing behavior for several reasons. In a related literature, Parker (2005, p. 10) identifies three highly influential theoretical models to explain why liquidity constraints become more severe as firm size decreases. These models suggest that the riskiness of borrowers or their risk loving natures, and the asymmetries of information between small young firms and creditors, are all sources of agency problems which lead to credit rationing or liquidity constraints for smaller firms. Additionally, the link between sources of funding and liquidity constraints can be easily traced in the case that debt is used, as empirically debt is both a source of funding as well as evidence itself of liquidity constraints. Berger and Udell (2003) find that small firms in the US use about 50% debt financing – the same as large firms, and that even pre-IPO firms average about 33% debt. If debt is an important form of financing for entrepreneurs, any differences between borrower and lender perceptions of risk will also lead to inefficient credit markets.[4] If lenders are unable to identify the quality or risk associated with particular borrowers, Jaffe and Russell (1976) show that credit rationing will occur.[5] In addition, de Meza and Southey (1996) propose a model which predicts that risk averse entrepreneurs will be driven out of the market because the lenders cannot differentiate between riskiness of entrepreneurs, and have to therefore charge a higher average amount for financing. These theoretical studies suggest the need to control for various sources of risk when identifying the extent of liquidity constraints for small firms.[6] This study will address this issue in part by controlling for individual risk attitudes when empirically examining the financing behavior of entrepreneurs.

More generally, liquidity constraints can occur if there is a lack of capital, collateral or access to capital markets. The issue of collateral may be particularly binding in the case of the high-technology entrepreneur whose firm's assets are predominantly intangible ideas, copyrights, licenses or patents and thus not conducive to collateral based lending. Since our data has information on loans and assets, the question of credit rationing relating to collateral based lending can be directly examined.

In the empirical literature, the role of wealth (or more specifically interpreting its sign or direction) on the firm's decisions is unclear, except to say that wealth generally appears to be statistically significant. In their survey of the literature on the role of wealth on entry, Georgellis et al. (2005) find the impact of wealth on entry to be negative in 7 studies, and positive in 11 studies – including Evans and Jovanovic (1989). Others, including Kan and Tsai (2006) and Elston and Audretsch (2010), find that wealth has a positive impact on entry even when controlling for risk attitudes. This study includes a measure of wealth to test for its importance as a measure of liquidity constraints in motivating the firm's financing choice and as a measure of the importance of collateral for loan based financing.

Understanding the economics behind firm financing choices is important in order to understand how liquidity constraints can be lessened for small high growth firms. A number of public policy efforts have in fact been undertaken, such as the SBIR, to reduce liquidity constraints for nascent firms and entrepreneurs, and empirical evidence has been mounting suggesting that the SBIR does, in fact, facilitate the start-up and performance of firms.[7] The question we would like to answer is: how does risk and wealth impact the firm's choice of the financing, including the SBIR and other sources of financing?

The purpose of this paper is to extend our knowledge of how successful entrepreneurs choose alternative financing sources, controlling not only for standard demographic characteristics of the entrepreneur (such as age, gender, race, and education) but additionally key variables which are purported to impact their financing decisions such as risk and wealth.[8] The data base and methodology are introduced in the second section of this paper, which involves field based experiments complemented with survey data. These data are then analyzed in the third section to identify the impact of characteristics of the entrepreneur, including risk attitudes and wealth, on alternative sources of financing. In the fourth section a summary and conclusion are provided. In particular, findings suggest that higher levels of risk aversion lead to an increase in the probability of using earnings from a second job to fund firm start-up. Results also suggest that higher levels of wealth have a positive impact on the probability of obtaining loan financing, but lower levels of wealth actually increase the probability of using a SBIR grant – indicating that SBIR grants may alleviate to some degree firm liquidity constraints.

2. The data

The data for this study come from field based experiments complemented with survey data, both of which were collected in 2004 at two US entrepreneurship related conferences.[9] Experimental tasks yielded data on risk attitudes of individuals, among other variables, and survey questions provided general information on subject and firm characteristics. These

[4] In addition, according to Sarasvathy et al. (1998) the perception of risk also varies between entrepreneurs and lenders, which is not addressed in this study.

[5] This phenomenon is analogous to the lemons argument advanced by Akerlof (1970): the existence of asymmetric information prevents the suppliers of capital from engaging in price discrimination between riskier and less risky borrowers.

[6] Also see Stiglitz and Weiss (1981).

[7] Lerner (1999), Link and Scott (2010), Elston and Audretsch (2010).

[8] By "successful entrepreneurs" we mean that these entrepreneurs currently have an active firm.

[9] Details experiments and can be found in Elston et al. (2005).