

Finance

Essays on Entrepreneurial Finance

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Essays on Entrepreneurial Finance

Publisher School of Business**Unit** Finance**Series** Aalto University publication series DOCTORAL DISSERTATIONS 102/2019**Field of research** Finance**Date of the defence** 6 June 2019**Language** English **Monograph** **Article dissertation** **Essay dissertation****Abstract**

This dissertation consists of an introduction and three original essays.

The first essay provides causal evidence that managers extrapolate when making real investment decisions. Managers of small, weather-sensitive businesses increase investment in response to temporary and weather-induced increases to their cash flows. This is consistent with the idea that their expectations of long term future cash flows have improved as a result of a temporary shock to current cash flows. Extrapolation has negative outcomes for these firms, with more firms shutting down in subsequent years.

The second essay (joint with Deniz Okat) attempts to provide causal evidence that high levels of corporate cash holdings lead to wasteful investments (i.e. cash holdings create manager-shareholder agency problems). Using the exercise of the greenshoe option during the initial public offering (IPO) process as an exogenous cash infusion to firms, we show that firms receiving cash "randomly" make more acquisitions and that these acquisitions have lower returns.

The third essay (joint with Elina Koivisto) examines the role of entrepreneur appearance in early-stage investment decisions. We ask participants on Amazon's MTurk service to rate a series of real investment pitches from the Slush 100 pitching competition on three dimensions of appearance: The appearance of competence, trustworthiness and attractiveness. We find that entrepreneurs whose appearance is rated "more competent" are significantly more likely to attract angel investment and venture capital with weaker but still positive effects for the appearance of trustworthiness.

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The Aalto Finance community helped make this PhD an interesting and rewarding experience. It was great being in a department where PhD students are welcomed as part of the community from day 1. The department was very social and I will miss the daily 14:30 coffee break and the evenings at Kiiski. In addition to that, the department provided everything needed to enjoy PhD studies and research – great colleagues who are willing to talk, a culture of openness and excellent resources.

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Kaustia, Vesa Puttonen, Elias Rantapuska, Matthijs Lof, Petri Jylhä, Sean Shin, Michael Ungeheuer, and Theresa Spickers for everything over the years. The other staff at the department, Sara Viitala, Reetta Ali-Alha, Antti Lehtinen, Sanna Pesonen, Henri Blomster and many past staff members also made the department a great place to work.

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Mikael Paaso

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Introduction

Small firms account for a significant portion of employment and economic activity in Finland (EVA, 2012) and around the world while young firms account for the majority of employment growth in the economy (Haltiwanger, Jarmin and Miranda, 2013 for US evidence and Vanhala and Viren, 2016 for a review of international evidence and Finnish statistics). Despite this fact, the vast majority of corporate finance research focuses on large, publicly listed US companies. There are many reasons to believe that small firms and young firms both invest and finance themselves in ways that differ from large firms. For example, a significant portion of small firms never raise external equity but instead raise debt that is personally guaranteed by the owner of the firm (Robb and Robinson, 2014). The firms that do raise external equity often raise financing from angel investors and venture capitalists who are markedly different from investors in public companies. On the investment side, young and small firms often lack the sophisticated planning tools available to large firms but have managers whose personal wealth is strongly tied to the success of their company.

In this dissertation, I examine both the investment and financing decisions of young and small firms. The first two essays look at various aspects of young/small firms' investment decisions. The first essay documents extrapolation bias using a natural experiment involving small Finnish firms. The second provides causal evidence for Jensen's (1986) free cash flow hypothesis using firms completing an Initial Public Offering (IPO). The third paper looks at the financing side and documents that early-stage investors (such as angel investors and venture capitalists) are more likely to invest in companies with managers that appear more competent and trustworthy.

Overall, the dissertation adds to our knowledge of corporate finance, especially within the relatively understudied context of small and young firms. However, the contribution is not limited to the setting and all three essays provide generalizable evidence on larger issues, such as the impact of extrapolation on financial decision making or the impact of appearance on investment decisions. The first two essays do this by using natural experiments to establish causality and to attempt to rule out potential confounding variables. For example, the first essay uses weather-induced variation in cash flows to document extrapolation. The prior extrapolation literature has struggled to account for omitted variables that may affect both past returns / cash flows and expectations of the future, such as business trends. The use of random variation in cash flows ensures that the shift in expectations can be attributed to the change in cash flows.

Essay 1: Extrapolation and Real Investment

The first essay of my dissertation provides evidence that small firms extrapolate from past cash flow growth when making real investment decisions. Extrapolation means that the future value of a variable is estimated using only past information about the same variable. For example, if a business has experienced high revenue growth in the past, someone with extrapolative expectations might assume that this will continue into the future.

Documenting extrapolation in financial decision making has been difficult. Most financially relevant variables, such as cash flows, are correlated with other variables that might affect expectations of the future. As an example, consider a company operating in the technology sector in the year 1999. The cash flows of the business have grown since 1995 and the manager expects

them to continue growing into the future. These beliefs are consistent with extrapolation, but they are also consistent with the manager believing that the internet will revolutionize business and as such, investments into technology are sure to pay off.

The approach taken in many previous studies on extrapolation (in financial decision making) has typically involved regressing expectations of the future on what has happened in the past. For example, Greenwood and Shleifer (2014) document that professional forecasters' expectations of equity returns are positively correlated with recently realized equity returns, suggesting that they extrapolate. Similarly, Gennaioli, Ma and Shleifer (2016) find that the earnings growth expectations of Chief Financial Officers (CFOs) are predictable from past earnings. Both papers argue for the extrapolation channel by showing that the beliefs (of future stock returns or earnings growth) are incorrect, suggesting that the CFOs or forecasters were not simply responding to some macroeconomic trend. However, this still leaves open the possibility that these forecasts were made irrationally, but not because of extrapolation (to return to the technology boom example, the manager may have been too optimistic about internet adoption).

In this essay, I use a different approach. In order to be able to rule out the idea that managers are simply using information that is correlated with past cash flow growth, I focus on variation in cash flows that happens almost randomly. The setting is as follows: Tourism-oriented companies¹ operating in Finnish summer home municipalities² have cash flows that depend on the amount of time tourists spend in these municipalities. The time that tourists spend is affected

¹ For example: restaurants, hotels, supermarkets

² 61 municipalities where the number of summer homes is greater than the number of other residential buildings (and three municipalities where the difference is two or one)

by the weather during the summer. A summer with good weather (low rainfall) leads to tourists spending more time, hence rainfall during a summer has an impact on the cash flows of a subset of firms in these municipalities. Rainfall itself is completely uninformative about future cash flows and uncorrelated with economic conditions. This means that variation in cash flows caused by rainfall can be used as “random” variation in the cash flows of tourism-oriented businesses.

In the essay, I show that managers invest following an increase in revenue caused by good weather. This is consistent with extrapolation as there is no rational reason for managers to invest after a temporary increase in revenue. However, there may be other reasons why an increase in revenue may lead to an increase in investment. A significant portion of the essay is spent ruling out alternative reasons for the increased investment such as the loosening of credit constraints or alternative irrational stories.

Essay 2: Do Corporate Cash Holdings Cause Agency Problems?

The second essay of my dissertation (coauthored with Deniz Okat at the Hong Kong University of Science and Technology) also uses a semi-entrepreneurial setting and quasi-random cash infusions to test an influential theory in finance, Jensen’s (1986) free cash flow hypothesis. The theory argues that high levels of cash flow (equivalently, cash holdings) are bad for companies as managers have an incentive to grow the firm beyond an optimal size (this is called “empire building”) because compensation contracts are typically closely related to firm size and because there may be non-pecuniary benefits to managing a large firm.

Surprisingly, empirical evidence testing the hypothesis has, with few exceptions, ignored the endogeneity of corporate cash holdings. Essentially, a firm’s level of cash holdings may be a function of manager or firm characteristics, current economic conditions or future plans of the company. As such, a correlation between cash holdings and value-destroying might not be driven by cash but instead by some other variable that is correlated with both.

We set out to test the theory by using quasi-random cash infusions to firms completing an Initial Public Offering (IPO). The cash infusions arise from the exercise of the greenshoe option during the IPO. The greenshoe is a call option that allows the underwriter to purchase extra shares from the issuer at the IPO price any time within one month after the IPO.³ This leads to a cash infusion of 15% of the size of the IPO.

As the exercise of the greenshoe depends on the one-month return, cash infusion due to the exercise of the greenshoe is not completely random. We account for this endogeneity by controlling for 2-month and 1-year returns (separately).

The idea is that the 2-month or 1-year returns will incorporate all the information in the 1-month return and more, meaning that if one is concerned that the 1-month return proxies for investment opportunities or is a function of firm characteristics, the 2-month return should capture all of this and more. However, within the set of firms with the same 2-month return

³ The greenshoe allows the underwriter to provide price support if the share price falls after the offer. In an IPO, the underwriter typically sells short 15% of the offering (*i.e.*, it places 115% of the offering with investors). If the share price goes down, then the underwriter covers his short position by buying shares from the market, which helps the price recover. If, on the other hand, the share price goes up, the underwriter exercises the greenshoe and buys extra shares from the issuer. The latter case leads to a cash infusion of 15% of the offering to the issuer. Virtually all bookbuilt US IPOs contain a greenshoe (Jiao, Kutsuna and Smith, 2017), and our identification strategy differentiates between firms where the option is exercised and those where it isn’t. We explain the mechanics of the greenshoe further in the “Research Design” section.

there are still firms which had the greenshoe exercised and firms which didn't, generating variation in cash levels.

We find that firms receiving quasi-random cash infusions make more acquisitions and that these acquisitions have lower returns. The average acquisition return is positive, but the marginal return is negative. Overall, our results support Jensen's (1986) hypothesis. We also find weak evidence suggesting that managerial compensation increases with cash holdings and that managers personally benefit.

Essay 3: Perfect Pitch: Appearance and Early-Stage Investment

The third essay of my dissertation moves away from the investment side and studies at how startups finance themselves. The essay (coauthored with Elina Koivisto, Aalto University) documents that early-stage investors are more likely to provide funding to startups with competent looking entrepreneurs. We use data on real investment pitches from Slush, one of the largest startup events in Europe, to present the first large-sample evidence of entrepreneurial appearance affecting funding decisions.

To obtain a measure of appearance, we ask participants on Amazon's Mechanical Turk (MTurk) service (who are very unlikely to be angel investors or to have heard of the startups pitching) to rate each entrepreneur's pitch on three aspects of appearance: competence, trustworthiness and attractiveness (Blankespoor, Hendricks and Miller, 2017). These measures were chosen to closely follow the prior literature and designed to elicit first impressions and we do not offer any guidance on (for example) what "competence" looks like. We then test whether this rating is correlated

with a firm's actual funding outcomes, namely whether the company received any funding, whether the company received "significant" funding and the total amount funded.

We find evidence that the appearance of competence and trustworthiness are positively associated with funding outcomes. However, future work is needed to establish whether this relationship is rational or not. We are currently in the process of updating the essay to include tests of whether firms run by more competent-looking entrepreneurs outperform (conditional on the level of funding) and whether the *ex ante* characteristics of these entrepreneurs differ from others, and whether conditional on these traits we still observe higher rates of funding (we have collected data on LinkedIn about the founders of these companies and will test whether they are for instance better educated or more likely to have experience as founders).

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