OULUN YLIOPISTO
UNIVERSITY of OULU

YLIOPISTOTENTTILOMAKEPOHJA / UNIVERSITY EXAM TEMPLATE

Koskee tiedekuntia LuTK, OyKKK, KaTK, TTK, TST ja BMTK (Linnanmaan tentit) /
Concerns Faculties SCI, OBS, OMS, TECH, ITEE and BMM (Linnanmaa campus)

Tentin pvm / Date of exam: 14.1. 2016	**Tentin kesto tunteina / Exam in hours: 4**
Tiedekunta / Faculty: **OBS**	
Opintojakson koodi, nimi, tentin numero ja opintopistemäärä / The code and the name of the course, number of the exam and credit units: **721961S Entrepreneurial Finance**	
Tentaattori(t) / Examiner(s): **Juha Joenväärä**	**Sisäinen postios. / Internal address:** 6 OyKKK / OBS
Sallitut apuvälineet / The devices allowed in the exam: ☒ Nelilaskin / Standard calculator ☒ Funktiolaskin / Scientific calculator ☐ Ohjelmoitava laskin / Programmable calculator ☐ Muu materiaali, tarkennettu alla / Other material, specified below:	
Tenttiin vastaaminen / Please answer the questions: ☒ Suomeksi / in Finnish ☒ Englanniksi / in English	
Kysymyspaperi on palautettava / Paper with exam questions must be returned: ☒ Kyllä / Yes ☐ Ei / No	

Answer 4 questions.

1. Return-to-entrepreneurship.
   a. Explain what kind ways are used to measure entrepreneurial income and what are the challenges and alternative ways to measure? (3 points)
   b. What you can say the performance of equity component? Does it outperform the public equity returns? (3 points)

2. Venture capital contracts.
   a. How VC financing aims to overcome the agency problems? What kind of securities are sued? How cash-flow and control rights are allocated? (4 points)
   b. Venture capital contracts especially in the U.S. often involve vesting provisions. From the venture capitalist's point of view, what is the main purpose of writing down such provisions into a financing contract? (2 points)

3. Entrepreneurship and liquidity constraints.

   a. What are liquidity constraints? Does they exit? Summarize research findings (utilize figures below). (3 points)

   b. Explain the how the existence of liquidity constraints can be tested empirically using data. What are the main variables of interest? (3 points)

Appendix Figure 1: Self-Employment Entry Rates by Pre-Entry Asset Levels

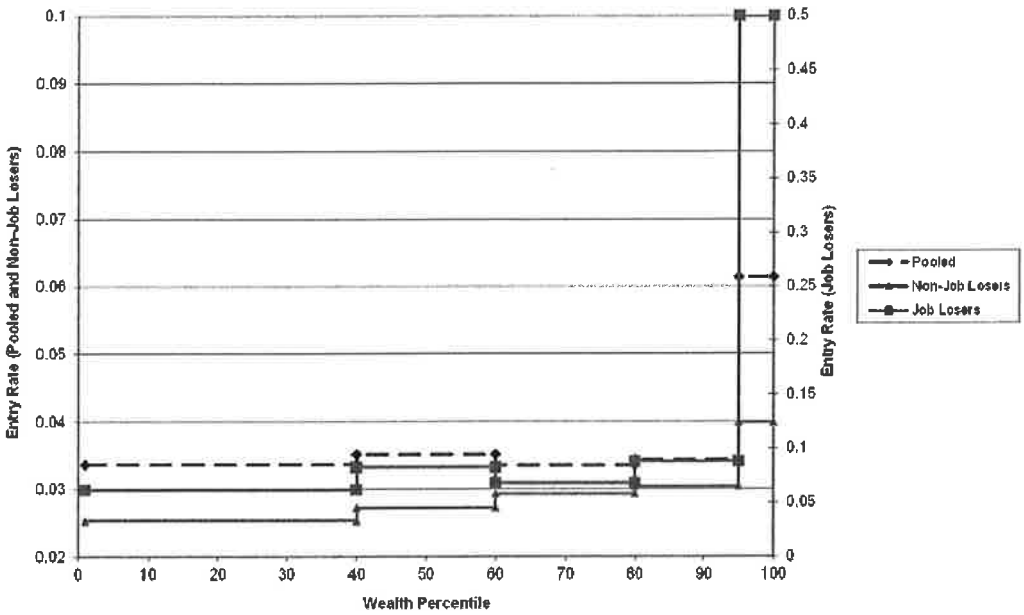
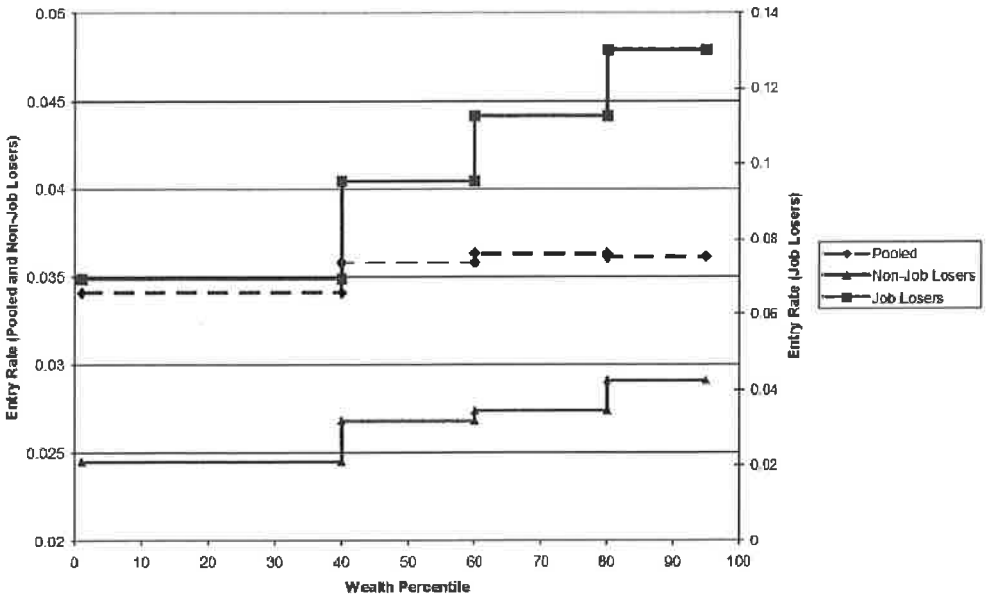


Figure 1: Self-Employment Entry Rates by Pre-Entry Asset Levels



4. Risk and returns in venture capital.

   a. Describe what the (dis)advantage is of company-level data when one evaluates venture capital risk and return? (2 points)

   b. To which extent provide venture capital returns are exposed to public stock market risk factors? (See Table 7 below) (2 points)

   c. What these findings imply for the investors such as pension funds? Can they get the same risk exposure using ETFs? (2 points)

Table 7
Estimates with VC factor

	(1)	(2)	(3)	(4)
Valuation Equation				
Intercept	–0.0537***	–0.0540***	–0.0527***	–0.0525***
	(0.0016)	(0.0016)	(0.0018)	(0.0019)
RMRF	0.9345***	1.0659***	0.9791***	1.1644***
	(0.1488)	(0.1713)	(0.1555)	(0.1756)
SMB			0.5201***	0.5435***
			(0.1915)	(0.1739)
HML			–1.0093***	–1.0556***
			(0.1290)	(0.1215)
VC Factor	0.5816***	0.5460***	0.4773***	0.4289***
	(0.0369)	(0.0377)	(0.0394)	(0.0411)
Sigma	0.4048***	0.4048***	0.4035***	0.4014***
	(0.0053)	(0.0045)	(0.0048)	(0.0045)
Selection Equation				
Return	0.3567***	0.3546***	0.3561***	0.3560***
	(0.0094)	(0.0089)	(0.0091)	(0.0104)
Time	0.4091***	0.4038***	0.4146***	0.4064***
	(0.0207)	(0.0209)	(0.0216)	(0.0243)
Time Squared	–0.0396***	–0.0387***	–0.0400***	–0.0390***
	(0.0028)	(0.0027)	(0.0030)	(0.0031)
Acquisitions	7.3768***	7.6483***	7.2524***	7.3702**
	(1.0357)	(1.1640)	(1.0105)	(1.1041)
IPOs	–3.1900***	–3.1766***	–3.1626***	–3.0994***
	(1.0098)	(1.0451)	(0.9949)	(1.0286)
Rounds	0.2134***	0.1791**	0.2251***	0.1866**
	(0.0771)	(0.0849)	(0.0756)	(0.0807)
RMRF		–0.3309*		–0.2997*
		(0.1697)		(0.1827)
SMB				–0.1836
				(0.2344)
HML				0.4435**
				(0.1991)
VC Factor		0.0838***		0.0950***
		(0.0274)		(0.0275)
Constant	–2.2136***	–2.2071***	–2.2207***	–2.2067***
	(0.0264)	(0.0289)	(0.0267)	(0.0294)

The table presents MCMC estimates of the one-factor market model and three-factor Fama-French model in monthly log returns with selection correction. Factor and risk-free returns are from Kenneth French's website. The estimates are means and standard deviations (in parentheses) of the simulated posterior distributions. In the valuation equation, *Intercept* is the monthly intercept in excess of the risk-free rate and *RMRF* is the slope on the market log return in excess of the risk-free rate. SMB is the small-minus-big portfolio, and *HML* the high-minus-low book-to-market portfolio. *VC Factor* is the log-change in the total dollar volume of VC investments in the month of the observation. *Sigma* is the estimated standard deviation of the error term. In the selection equation, *Return* is the log return earned since the previous financing event. *Time* is the time since this event (in years). *Acquisitions*, *IPOs*, and *Rounds* contain the number of VC-backed acquisitions, IPOs, and total VC investment rounds in the month of the observation (in 000s). The simulations use 5,000 iterations preceded by 1,000 discarded iterations for burn-in. ***, **, and * denote whether zero is contained in the 1%, 5%, and 10% credible intervals, respectively.