Written Exam Economics Winter 2017-2018

Corporate Finance Theory

Date: from 15 December 2017 (10 AM) to 5 January 2018 (10 AM)

This exam question consists of 3 pages in total (including this page)

A take-home exam paper cannot exceed 10 pages – and one page is defined as 2400 keystrokes.

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by "eksamen på dansk" in brackets, you must write your exam paper in Danish.

If you are in doubt about which title you registered for, please see the print of your exam registration from the students' self-service system.

The paper must be uploaded as <u>one PDF document</u>. The PDF document must be named with exam number only (e.g. '1234.pdf') and uploaded to Digital Exam.

Focus on Exam Cheating

In case of presumed exam cheating, which is observed by either the examination registration of the respective study programmes, the invigilation or the course lecturer, the Head of Studies will make a preliminary inquiry into the matter, requesting a statement from the course lecturer and possibly the invigilation, too. Furthermore, the Head of Studies will interview the student. If the Head of Studies finds that there are reasonable grounds to suspect exam cheating, the issue will be reported to the Rector. In the course of the study and during examinations, the student is expected to conform to the rules and regulations governing academic integrity. Academic dishonesty includes falsification, plagiarism, failure to disclose information, and any other kind of misrepresentation of the student's own performance and results or assisting another student herewith. For example failure to indicate sources in written assignments is regarded as failure to disclose information. Attempts to cheat at examinations are dealt with in the same manner as exam cheating which has been carried through. In case of exam cheating, the following sanctions may be imposed by the Rector:

- 1. A warning
- 2. Expulsion from the examination
- 3. Suspension from the University for at limited period or permanent expulsion.

The Faculty of Social Sciences
The Study and Examination Office
October 2006

Please answer all questions. Answers must be submitted in English.

You are allowed to discuss the questions with your fellow students, but you must write up your own individual answer to all questions.

Exam scripts may be checked for plagiarism. Note, in particular, that copy paste of each others' answers, or changing only a few words in sentences, etc. constitutes plagiarism.

1. Problem 1

Write 1 to 2 paragraphs for each of the following subquestions. You are welcome to use a limited number of mathematical symbols in your answers, but please do not include any explicit calculations.

(a) Consider a takeover contest in the framework of Povel and Singh (2010). Summarize how an offer of stapled finance can affect the behavior of bidders, as well as the outcome of this takeover contest.

(b) Explain the relationship between moral hazard and liquidity mergers in Almeida et al. (2011). Discuss, in particular, what might happen to merger activity in their framework if firms became less tempted to shirk on their projects.

(c) Briefly compare and contrast how incomplete contracting (i.e. the fact that employment contracts are incomplete) affects firm activity in DeMarzo et al. (2014), relative to Fahn et al. (2014).

2. Problem 2

This problem concerns the model of Bayar and Chemmanur (2011), where an Entrepreneur must choose between two different modes of exit: IPO vs Acquisition. For a detailed description of this model, please see the article by Bayar and Chemmanur, along with the relevant lecture slides.

Throughout this question, you can assume that the Entrepreneur chooses between IPO and Acquisition without any influence from the Venture Capitalist (i.e. the Venture Capitalist plays no role, so I omit the subscript 'E' or 'V' on parameters). You can also assume that $\delta_E = \rho = 1$, $p_L = V_F = I = 0$; in particular, this implies that the project is costless to start, that the project of a type L firm always fails, and that failure generates zero cash flow. Finally, you can assume that the following conditions hold for the remaining parameters: $\alpha p_H V_S/2 + B < p_A V_S < \alpha p_H V_S + B$ and $p_A + (1-\alpha)p_H < 1$.

All parts of this question concern a partial pooling equilibrium where a type H firm chooses IPO with probability 1, and a type L firm plays a mixed strategy that places probability $\beta \in (0,1)$ on IPO and $1-\beta \in (0,1)$ on Acquisition.

(a) Show that, in equilibrium, the IPO share price must satisfy $P^* = \frac{p_A V_S - B}{\alpha}$.

(b) Show that the equilibrium mixing probability for an L firm is given by $\beta^* = \frac{\alpha p_H V_S}{p_A V_S - B} - 1$, and that it satisfies $0 < \beta^* < 1$.

We now make one change to the model by assuming that an H firm performs better than an L firm in the product market following an acquisition. That is, hold p_A constant, and continue to assume that an L firm succeeds with probability p_A following an acquisition; but now assume that an H firm succeeds with probability $p_A + \Delta$ following an acquisition, where $0 < \Delta < 1 - p_A$.

(c) Show that when $\Delta < (1 - \alpha)p_H$, the partial pooling equilibrium described above still exists, with the same equilibrium share price of P^* from part (a), and the same equilibrium mixing probability of β^* from part (b).

(d) Show whether or not this same partial pooling equilibrium will still exist when $\Delta > (1 - \alpha)p_H$. What might this result suggest about firm behavior in practice?

(e) Based on your answers above, comment on whether Bayar and Chemmanur's assumption that H firms and L firms perform equally well in the product market following an acquisition is crucial for their analysis.

3. Problem 3

Please seek out and find a news story, describing a case that relates to some of the ideas from the course. Discuss to what extent the main points from the news story relate to the different articles we have seen throughout the semester (approximately 2-3 pages). In particular, comment on both of the following:

- Which theoretical results from the articles can (or cannot) shed light on the news story?
- Which of the key modelling assumptions behind these theoretical results are realistic, when applied to this real-life situation?

Note: you are not expected to relate the news story to every single article we have seen. Rather, you should select a few articles from the course which you believe are most relevant for the news story you have chosen. Moreover, your answer should include a link to, or a copy of, the news story in question.