NATIONAL UNIVERSITY OF SINGAPORE

GEK2013 – REAL ESTATE FINANCE

(Semester II: AY2011-12)

Time Allowed: 2 hours

INSTRUCTIONS TO CANDIDATES

1. This examination paper contains **FOUR** questions and comprises **FIVE** printed pages.
2. Answer **ALL** questions.
3. The marks for each question are shown in brackets and add up to 100.
4. This is an **OPEN BOOK** examination.
5. The examiner for this module is Associate Professor Lum Sau Kim.

Question 1 (40 Marks)

Jim, a civil servant in his mid-30s, has approached you for real estate finance advice. Seven years ago, he purchased a new HDB (Housing and Development Board) flat in Punggol with his father. They used a HDB subsidized mortgage that currently has an outstanding loan balance of $158,000. Jim and his father withdrew lump sums of $30,000 and $15,000 respectively from their CPF (Central Provident Fund) Ordinary Accounts for the purchase back then. In addition, Jim serviced the HDB loan using $600 each month from his Ordinary Account contributions.

Jim is considering upgrading to a private residential unit. He is still single but hopes to settle down some day. As the only son, he wants to take care of his elderly parents as well. His father is willing to let Jim use the sale proceeds from their current HDB flat for the upgrading.

Currently, Jim draws a monthly salary of $8,300. His father earns only $900 a month and his mother is a housewife. You can assume that Jim's monthly contributions in excess of debt service have accumulated to a total of $88,000 in his CPF Ordinary Account. The CPF interest rate on Ordinary Account contributions over the last seven years was 2.5% p.a. on a monthly compounding basis.

You are in possession of the following facts:

- In selling the HDB flat, you expect the sale proceeds to be at least the valuation amount. Currently, similar flats are valued at $430,000. You estimate total selling costs to be 0.3% of the sale price.
- Jim intends to buy a secondary unit in a nearby condominium. The indicative price is $720 per square foot for a unit of about 1,000 square feet.
- Buyers will pay stamp duty according to the prevailing schedule. They would likely incur legal fees of approximately 1.5% of the purchase price.
- The quantum of the housing loan for the secondary unit cannot exceed 80% of the purchase price or valuation, whichever is lower.
- Assume that employers contribute 16% and employees contribute 20% of the contract salary, up to a salary ceiling of $5,000, towards the CPF Accounts but that only 23% of the salary goes to the Ordinary Account.
- All computations are on a monthly compounding basis.

Based on the case notes, answer the following questions. Clearly state any assumptions you may make.

(i) How much must be refunded to the CPF when the flat is sold?

(8 marks)

(ii) Determine the cash proceeds from the sale of the HDB flat assuming it can be sold at the valuation amount.

(8 marks)

(iii) If the initial down payment were to be all cash, what is the minimum cash outlay required for the purchase of the private condominium at the asking price? Does Jim have sufficient cash to afford the purchase?

(6 marks)

(iv) Suppose that Jim can raise sufficient cash for the initial outlay. Compute the loan amount that Jim can take if he fully utilizes the entire CPF balance in his Ordinary Account (including the amount refunded after the sale of the HDB flat) but does not touch his father's CPF balance.

The bank imposes a maximum PIR (payment to income ratio) of 40%. Determine the highest amount of monthly debt service that the bank would allow Jim to make based on his current salary. Is this comfortable for Jim if he uses all his monthly contribution to the CPF Ordinary Account for debt repayment?

Assume that Jim borrows for 30 years on a fixed rate basis. Determine the annual interest cost of the loan if he exhausts his CPF balance and services the debt at the maximum allowed PIR.

(12 marks)

(v) In part (iv), it was assumed that it is in Jim's interest to use his entire CPF balance to reduce the amount of the loan. What would you advise Jim to consider before deciding on hollowing out his entire CPF Ordinary Account balance for his housing purchase?

(6 marks)

Question 2 (30 Marks)

Quicksand Development (QD), a real estate development company, is evaluating if it should proceed with developing a small parcel of prime land that was bought two years ago for $40 million. Its directors are concerned with the current slowdown in the luxury segment of the private housing market but are unsure if the market cooling measures implemented thus far would be lifted or tightened further. They came across a Straits Times report on 1 March 2012 in which a veteran real estate tycoon shared his business model. The relevant excerpt is attached below:

WAIT FOR BETTER TIMES

'There's also a business model that some of (the developers) may be starting to think about… we don't want to sell but keep it and get rental income… One day, the property will appreciate a lot.'

CDL director and executive chairman Kwek Leng Beng, who highlighted that he is not worried about the health of the high-end sector because most developers have strong balance sheets and can afford to hold on and sell when better times return.

Source: The Straits Times © Singapore Press Holdings Ltd

Quicksand's directors agree with this assessment and believe that real estate values will peak in five years time, coinciding with the next General Election in Singapore. QD's consultants have come up with the following:

- The site can accommodate 138 residential units of about 48 square meters each. Such shoebox units seem to be very popular with homebuyers given their affordability.
- The construction period is expected to be two years. Construction costs are about $22 million and are payable in two equal installments at the end of each year.
- At the end of two years, Quicksand intends to rent out the units for three years before selling them at the end of the fifth year.
- The net rental income of each unit is expected to be $48,000 per year, receivable at the end of each year. QD expects to rent out 100% of the units for all the three years.
- The sale price of each unit is forecast to be $1.3 million at the time of sale. QD predicts strong demand and hence, all units should be sold then with all proceeds received immediately upon sale.
- QD is targeting an internal rate of return of 15%.
- If QD were to sell the land today, it will fetch $53 million.
- All computations are on a yearly compounding basis.

(i) Create a cash flow pro-forma of the proposed development beginning from today (time zero) to the end of year 5.

(10 marks)

(ii) Compute the NPV (Net Present Value) of the develop-rent-sell proposal based on your pro-forma. Should QD proceed with the development or sell the land immediately?

(10 marks)

(iii) If a private equity fund offers to buy all the units on completion at $940,000 each, should QD sell the entire project then? Please explain the basis of your decision.

(10 marks)

<u>Question 3 (20 Marks)</u>

Working with a major foreign bank, a local developer is offering housing loans for its units that are sold off-plan. The expected completion date for the project is in 2 years' time and progress payments are expected to be payable as follows:

Time (year)	% of progress payment
0.5	30%
1	30%
1.5	10%
2	10%

There are two schemes, A and B, and both offer rates that are lower than the prevailing mortgage rate (PMR) of 5% p.a. (per annum). The details of the schemes are as follows:

	Scheme A	Scheme B
First year of loan	4% p.a.	4% p.a.
Second year of loan	4.25% p.a.	(PMR – 0.75)% p.a.
Third year of loan	4.5% p.a.	(PMR – 0. 5)% p.a.

(i) Without computing the savings, state which scheme you would recommend if over the next three years, the PMR

a. remains constant at 5% p.a.;

b. increases by 0.5% each year;

c. decreases by 0.5% each year?

(9 marks)

(ii) For general changes in the PMR, propose an analytical framework for evaluating these schemes.

(6 marks)

(iii) Would your answers be different if the government were to allow deferred payments rather than progress payments for these residential units?

(5 marks)

Question 4 (10 marks)

Choose ONE of the following TWO problems below.

a) Why might the market value of a loan be different from its outstanding loan balance?

b) At a real estate finance seminar, you were told the following:

Inflation is great for borrowers because you can pay off tomorrow's debt using cheaper money. That means, deflation would be wonderful for lenders as borrowers will pay off their debts with more expensive money in the future.

Discuss if these statements have any merit.

END OF PAPER