Investigations in Home Equity Position Markets

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Abstract

Description here.

I. Introduction

As participants in the Budapest Semesters in Mathematics program in Fall 2013, Emily proposed an Elective Undergraduate Research project based on an internship she had in the summer of 2013. The internship was with a startup company called PRIMARQ in San Francisco. The company hopes to create a market for the trade of equity positions in owner-occupied, residential real estate. As such a market has never existed before and will differ from the known stock and real estate markets, Emily hoped to model the growth and behavior of such a market and Dan offered to work with her in this research. In the next few pages, we will present the structure of the overall market we are trying to model, the methods and techniques we used in specific aspects of the model, and our results. We will conclude with open questions.

II. Structure of the Market

To begin, we would like to present the overall structure of a PRIMARQ transaction, as that forms the basis of the our model. In broad terms, the model will cover two parts of a transaction: 1) the creation of a Home Equity Position (hereafter refered to as HEP) when an individual buys a home, and 2) the trading of that HEP among investors on the secondary market.

We will explain in detail with an example. Homebuyer A decides to buy a home in San Francisco but asks PRIMARQ for an additional $50,000 to help with the down payment, in exchange for a percentage stake in the equity of the home. Homebuyer A decides that she is willing to offer 15% of the equity in her home in exchange for the $50,000. So, she decides to offer this equity on the Exchange.

Prospective investors registered with PRIMARQ have access to the Exchange website. There, they see that there is a position available in a home in San Francisco, that Homebuyer A is asking for the fixed $50,000 and that she is opening the equity position at 15%. The investors also see some financial information about Homebuyer A, including her credit score, etc. The investors evaluate this position (including the home in question, the neighborhood and city in which is it located, etc) and investors B, C, and D decide to place bids to purchase the HEP.

Following their decisions to place a bid, investor B begins the process. He offers Homeowner A the $50,000 in exchange for the 15% equity position, as she originally offered. Investor C, thinking that the home will probably increase considerably in value in the next few years, offers to give Homebuyer A the $50,000 but for only a 13.5% position in the equity of the home. Investor D is more hopeful still and offers the $50,000 for only a 12% equity stake in Homebuyer A's new home. Investors B and C do not want to bid any lower, and Homebuyer A likes Investor D's offer, so Homebuyer A and

*A thank you or further information

Investor D enter into the transaction togethe

Homebuyer (now Homeowner) A and Investor D now own the home as Tenants in Common[1], and this arrangement will continue until one of two things happens: either Homeowner A decides to sell the home, or Investor D decides to sell his equity position[2].

As soon as a home equity position has been created in a home, it can be sold and traded as a stock on PRIMARQ's Secondary Market. If Investor D decides he wishes to sell his HEP, he can post his asking price on the Exchange for other registered investors to see. The HEP can change hands without any change happenening to the homeowner's claim the home. The amount of equity assigned to a HEP does not change when the position is sold - the price may fluctuate depending on the valuation of investors, but the underlying claim to the house remains fixed at the percentage at the time of the HEP's creation.

If the homeowner decides to sell the home, then after all costs associated with the sale are taken care of, the remaining profit is divided according to the originally decided equity split between the homeowner and whoever owns the HEP at the time, and the HEP position is terminated. If the new owner of the home decides to create a new HEP, then the process begins again.

We now make a note of a few important factors in these transactions:

- More than one HEP can be in place in one home. This means that the homeowner may be on the title of the home with the Trust, and the trust may have multiple benficiaries.
- The homeowner must always own the majority (51%) of the equity in the home.
- As of now, this is the only passive way for investors to invest in owner-occupied, residential real estate.

This is the market that PRIMARQ is on its way to creating. Our job this semester was to try and see how this market might develop, using the research that has already gone in to

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III. Results

Table 1: *Example table*

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First name	Last Name	Grade
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Richard	Miles	2

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[1] Note: This is different in legal structure than a Joint Tenancy, specifically because Joint Tenancy includes Right of Survivorship, wherein upon the death of Homeowner A, the ownership of the home would pass to Investor D. This is *not* the case in a Tenancy in Common.

[2] Specifically, the home is put in the name of the Homeowner and a Trust as tenants inc ommon, and he beneficiary of that Trust is (are) the investor(s). In this manner, if the investors trade their positions, it doesn't not affect the homeowner's claim to the home or the equity split. The beneficiary of the fixed trust simply changes, which prevents the equity split having to be reevaluated with every sale of the HEP on he secondary market.

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IV. Discussion

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II. Subsection Two

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References

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[2] Baxter M. / Rennie A. *Financial Calculus: An Introduction to Derivative Pricing*. Cambridge, UK: Cambridge University Press. 1996.

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