

Renegotiation in the Common Law Mortgage and the Impact of Equitable Redemption

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Abstract

This paper seeks to fill a gap in the real estate finance literature by linking the well-known history of the Anglo-American mortgage recorded by legal scholars with the recent literature on security design and incomplete contracting in order to explain and evaluate several unique features of the mortgage. In particular, we investigate how a conditional transfer of ownership to a lender and the institution called the equity of redemption affect mortgage renegotiation and therefore the value of mortgaged real estate. Given the governance of the common law mortgage, we show that a mortgagor may not be able to renegotiate his mortgage debt in order delay repayment when faced with a re-investment opportunity during the life of the mortgage. The failure to optimally renegotiate the mortgage does not necessarily result in foreclosure but may result in underinvestment. Therefore, an additional period of time between default and foreclosure, known as a period of equitable redemption, may allow the mortgagor to accrue sufficient cash flow to not only avoid foreclosure but to mitigate underinvestment in non-default states. Since this extra period of time may not be achievable *ex post* due to a hold-up problem, its inclusion *ex ante* may be welfare improving.

1. Introduction

In general, secured debt allows borrowers and lenders to overcome a host of potential agency problems in financial contracting (Smith and Warner 1979, Smith 1982, Adler 1998). In particular, security may make some financial contracts feasible by overcoming hold-up problems. When a lender holds something of value that provides an incentive for the borrower to repay a debt, the expected return on the lender's investment is improved. Absent the trading of hostages or other informal mechanisms, the means by which borrowers can credibly pledge assets to a lender depends on the nature of the legal system. In early common law, borrowers simply transferred ownership of real estate to a lender in exchange for a sum and then agreed to terms through which the debt could be repaid and the asset redeemed. The mortgage was born.

Various features of the Anglo-American mortgage have persisted for over four centuries and are still enforced in mortgage contracts today. However, recent innovations in real estate finance in the United States are testing the limits of this governance system, and therefore, careful review of the foundations of mortgages is warranted.¹ This paper seeks to fill a gap in the real estate finance literature by linking the well-known history of the Anglo-American mortgage recorded by legal scholars with the recent literature on security design and incomplete contracting in order to explain and evaluate several unique features of the mortgage. In particular, we investigate how conditional transfers of ownership to a lender and the institution called the equity of redemption affect mortgage renegotiation and therefore the value of mortgaged real estate.

¹ See for example Shanker's (2003) article entitled, "Will Mortgage Law Survive?"

The story of equitable redemption begins in the seventeenth century when the courts of equity first allowed borrowers on a case by case basis an additional period of time after a mortgage default in which to repay the debt amount owed (plus expenses) and redeem their ownership of the real estate asset pledged as collateral (Turner 1931). One motivation for such relief was related to the fact that the existing common law mortgage provided for title to real estate to vest unconditionally in the lender if the borrower was even a day late in repayment and any number of hardships might thwart a willing and able borrower from showing up and paying on the appointed day. The innovation eventually became known as a period of equitable redemption, and it was enforced on behalf of all borrowers in mortgages by the mid-seventeenth century (Turner 1931). Once equitable redemption became enforced, lenders had to petition the court upon a default to *foreclose* the borrower's redemption period. If the borrower failed to repay according to the original terms of the mortgage before the foreclosure date set by the courts, then the lender automatically obtained unconditional title to the real estate asset (so-called *strict foreclosure*).

We show that the nature of mortgage renegotiation depends on the governance of the mortgage at different points in its history and consider the impact of a period of equitable redemption on the value of the contract. Prior studies of mortgage renegotiation focus on deadweight losses that are incurred in foreclosure when renegotiation is unsuccessful in default scenarios (Riddiough and Wyatt 1994; Harding and Sirmans 2001). In contrast, we model the reinvestment activity of the mortgagor during the life of the mortgage and show that failed renegotiation or default result in underinvestment when the mortgagor makes socially valuable investments. Indeed, the recent literature on incomplete contracting demonstrates that ownership matters when a party is expected to make future, non-contractible and specific investments in an

asset (Hart 1995). Huberman and Kahn (1988, 1989) have previously argued that the allocation of ownership or control over real estate in a mortgage is benign when the parties can costlessly renegotiate the mortgage at a later date. However, they do not model the potential reinvestment activity of the mortgagor.

Due to the basic agency problem that makes security valuable in the first place and an assumption that at least some future investments are non-contractible, we show that a mortgagor may not be able to renegotiate his mortgage in order to delay repayment when faced with a re-investment opportunity during the life of the mortgage. Given the institutions of real estate finance, these results stem from the assumption that the mortgagor is wealth constrained and cannot engage in making *both* the required debt repayment and a socially desirable investment in the real estate. A failure to optimally renegotiate the mortgage does not necessarily result in foreclosure but may result in underinvestment in the re-investment opportunity. Therefore, an additional period of time between default and foreclosure may allow the mortgagor to accrue sufficient cash flow to not only avoid foreclosure but to mitigate underinvestment in non-default states. Since this extra period of time cannot be negotiated *ex post* due to the hold-up problem of the lender, its inclusion *ex ante* may be welfare improving. In addition, we show that the value of equitable redemption survives other changes to the governance of the mortgage contract through time.

In the next section, we review the nature of the institutions that comprised the governance system of the common law mortgage. Then, in section 3 we develop a stylized model of the mortgage, closely related to the work of Hart and Moore (1998) in which assume that the entrepreneur/borrower is the optimal owner of the durable real estate asset, and in section 4 we demonstrate how modifications of mortgage governance by the courts of equity in the

seventeenth century improved the efficiency of the mortgage. In section 5 we place these innovations in the context of modern mortgage financing and conclude.

2. The common law mortgage

2.1 The role of real property law

We begin by describing the governance of the early Anglo-American mortgage. A survey of the history of the mortgage from the viewpoint of legal scholars suggests that the nature of the mortgage was quite sensitive to on-going changes in real property law. We review this history and briefly explore why other governance mechanisms were likely inadequate to the task of overcoming a lender's hold up problem. It is in the context of the governance system provided by real property in the seventeenth century that we then analyze the development of equitable redemption.

The procedures and protections surrounding the ownership of land to which the mortgage appealed were developed from well-established feudal practices where rights to land were allocated by the king to individuals, who could in turn re-allocate the property rights to others. A stylized set of procedures arose at common law to protect certain bundles of real property rights; these recognized and enforceable forms of ownership were known as *estates in land*. As the law changed with respect to new forms of estates and the occasional elimination of some older forms of estates, the mortgage was constantly modified.

The Justiciar Glanville, in the first commentary on common law, provides evidence that mortgages existed in England at least as early as the time of his writing in the twelfth century. The law was quite primitive in these times and it has been observed that

the common law was essentially the law of land. The implications of this fact were very far reaching. Its procedure was designed to reach people who owned land, and consequently was directed principally against the land rather than the person (Plucknett 1956, p. 177).

In addition and as a consequence of the early focus on real property, the common law “arrived at a systematic law of contract about three centuries later than the rest of the world” (Plucknett 1956, p. 627). This penchant for property and a focus on the asset as opposed to the individual is a prevalent theme in comparative real property law. For example, Mattei (2000) observes that while most contractual relationships in civil law are “grounded” in the law of obligations, many contracts in common law have their origins in the law of real property. The mortgage is no exception.

With the protection of the common law, the holder of an estate in land could use well-defined methods to transfer or convey his property rights to another and the transferee’s property rights would be well-protected. Wrongful ejection of an “owner” was quickly corrected through specific restitution of the land to ejected owner and the defendant might also be found guilty of a crime and subject to a fine and/or imprisonment (Plucknett 1956).² Over time in common law, five freehold estates were recognized: the fee simple absolute, the fee simple determinable, the fee simple subject to a condition subsequent, the fee tail estate and the life estate (Cribbet and Johnson 1989). The first three of these estates played a role in the mortgage at one time or another. Non-freehold (as opposed to freehold) estates referred to the relationships between a landlord and a tenant. In general non-freehold estates were inferior claims and the rights of a tenant to possession were not widely enforceable against third parties until almost the sixteenth century (Plucknett 1956).

² Technically, the correct term is not “owner” but a person who was “seised” of the land. The action of novel disseisin that provided for immediate restitution was created under the rule of Henry II perhaps around the mid 12th century (Plucknett 1956).

Cribbet and Johnson (1989) note that *real* refers to the ability (an action) at law to regain ownership of land and that land is often referred to as *real property* as a result of the historical ability to use this form of action in court. Plucknett (1956) asserts that this nomenclature is in fact due to confusion caused by scholars.³ Regardless, the fact that English law was characterized by various legal actions and procedures for enforcing judgments is important for a discussion about the governance of mortgages. Plucknett (1956, p. 633) reveals that the ability of an unsecured creditor to bring an action against a debtor originally suffered from “grave defects.” Even if a judgment was handed down in favor of the creditor, she may be faced with limited access to the debtor’s main source of wealth: his land. In the least, the process of bringing an action over an unsecured debt was more costly than actions involving land. Such judgments could proceed against only the debtor’s personal property prior to late in the 13th century, although this included crops, rents and leases.⁴ By the end of the 13th century a statutory process called *elegit* allowed creditors to receive up to one half of the debtor’s land in satisfaction of a judgment regarding unsecured debt (Plucknett 1956).

There are several other documented forms of the mortgage, but by the fourteenth century, a mortgagor could transfer title to the lender on a condition subsequent. The estate called a *fee simple estate subject to a condition subsequent* had become an enforceable estate at law and through it, the borrower held a *right of re-entry* in the event that he fulfilled the condition. In the context of the mortgage, the condition was one of defeasance through which a mortgagor could repay a debt due on “law day” and defeat the lender’s title. The lender’s claim to the real estate

³ “Instead of this Germanic classification based on the nature of relief sought, the Roman classification was based upon the nature of the right asserted, and Bracton attempted to apply this classification to the existing English material” (Plucknett 1956, p. 375).

⁴ The creditor could elect to have the debtor placed in prison after 1352, but if she went this route, she forfeited the right to proceed against his real or personal property.

became unconditional, however, if the debtor failed to pay on the specified day. As with the earliest mortgages, the use of real property law to convey property rights to the lender at the inception of the mortgage meant that the full “incidents of title” were also passed to the lender and that only the borrower’s repayment of the debt on law day could defeat the lender’s claim. Arguably, the most important of these incidents of title was the right of possession.

2.2 Possession

An important institutional constraint in early times in England was the attitude of the church against usury. While not strictly prohibited, charging interest on a loan was risky for the lender.⁵ Therefore placing the lender in possession of the real estate in early times established a means of providing her with a return on investment. In fact, some claim that the origins of the word “mortgage” resulted because of attitudes about usury and possession. If the lender who maintained possession of the property took the profits from the land applied them the reduction of principal, the gage was considered a “live” pledge and non-usurious. If, however, the lender kept the profits without applying them to the principal balance, the transaction was considered a dead pledge or *mort gage*. Over time, these origins became obscured (Osborne 1970) and the term mortgage was widely used for pledges secured by land regardless of how the lender utilized the proceeds from the collateralized land.⁶ By the seventeenth century, laws and attitudes against usury were relaxed and lenders could generally charge interest on loans. Perhaps not

⁵ Upon the death of a usurer, his property was forfeited.

⁶ Osborne (1970) claims that Littleton and others thought that the term referred to the fact that in default the borrower lost title to the real estate such that the asset was became *dead* to him. Osborne (1970) claims that this interpretation was misinformed by modern legal notions that were not in use at the time that the term mortgage was first observed.

coincidentally, it soon became standard to leave the borrower in possession of the property.⁷ Turner (1931) observes a *provisio* around 1620 which provided for the mortgagor to stay in possession of the land until default. However, Turner (1931) also provides evidence that the mortgagor's possession was enforced by the courts in a manner similar to a tenancy at will which could be terminated with notice by the mortgagee at her convenience.

3. The model

3.1 Introduction

The choice to issue a mortgage is an explicit attempt to engage the peculiar governance system of real property in order to provide adequate incentives to lenders. The Anglo-American governance system for mortgages was not initially specialized to this need, rather the mortgage appealed to a set of rules created for other purposes. To evaluate the governance of the common law mortgage and its subsequent modifications, we take and modify a model of debt by Hart and Moore (1998; hereinafter HM).

We augment the HM model of debt to fit the context of the social and legal environment of the early seventeenth century when the mortgage utilized the conveyance of a fee simple estate subject to a condition subsequent and when it was normal practice to leave the borrower in possession of the real estate until default. Unlike HM, we implicitly allow for the existence of a third party to the contract: the courts. The other main difference between our model and theirs is that we assume that real estate is durable such that at the time of the scheduled repayment the

⁷ It seems clear that other changes in the governance system also aided the decision to leave borrowers in possession of the real estate. With further developments in how the courts viewed the borrowers' rights prior to Law Day (discussed later in this paper), lenders became strictly accountable for any proceeds received if they chose to take possession of the real estate.

real estate has some remaining value as collateral. Recent models of debt (Aghion and Bolton 1992, Hart 1995, Hart and Moore 1998) typically assume that assets securing debt are completely depreciated in the last period of the model.

3.2 Model assumptions

We start with a two-period, three-date model in which an entrepreneur has valuable investment opportunity that costs I in a parcel of land that he owns, but he has no cash to invest in the project. The entrepreneur (he) can offer a mortgage to a lender (she) on a take-it-or-leave-it basis, and the entrepreneur's problem is to design a contract to overcome the lender's hold-up problem. We make the simplifying assumption that since the borrower has no cash up front, an unsecured debt contract is not feasible due to sufficiently high costs of enforcement and low expected returns to the lender should the entrepreneur default. In other words, we assume that a mortgage is the optimal contract. We also assume that information is symmetric between the entrepreneur and the lender, but at least some of this information is not verifiable to the courts. Therefore a completely contingent contract cannot be enforced.

The value of the unimproved land is w_0 at time 0, and we assume that the land is not generating any current cash flow. However, improvements created by the investment of capital in the land are expected to generate cash flows in each of two periods. We further assume that the improvements fully depreciate by the end of the second period, but that the land will still be valuable at that time. Notice that in the abstract context of the model, the length of these periods could be 1 year or 30 years, say.

The returns to the project are specific to the entrepreneur, although we do not model his effort or labor as a separate input to the project. However, the entrepreneur must remain in

possession of the land in order to achieve these better-than-market returns, and therefore, the returns accrue directly to him. This is the crux of the hold-up problem. The entrepreneur must credibly promise to share the returns with the lender.

Therefore, the entrepreneur agrees to transfer ownership of the real estate to the lender, but the conveyance can be defeated if the entrepreneur repays the loan at time 1. In addition, there is a covenant to leave the mortgagor in possession of the real estate until time 1, and we assume that this promise is enforceable. If a required payment is made to the lender at time 1, then the ownership of the real estate reverts to the entrepreneur with a value of $w_1 \equiv R_2 + w_2$. If repayment is not forthcoming, ownership of the land becomes absolute in the lender. Due to the fact that the investment is specific to the entrepreneur, the liquidation value of the real estate if handed over to the lender at time 1 is $L \leq w_1$ with probability 1. Should the mortgage be renegotiated to extend until time 2, however, we assume that the liquidation value of the land to either party at time 2 is w_2 given that the improvements created by the investment have fully depreciated by the end of the second period.

Given that the present value of the real estate is comprised of its cash flow in the next period and its remaining value at the end of the period, we can write $L = \gamma R_2 + w_2$ and $w_1 - L = (1 - \gamma)R_2$, where γ is assumed stochastic. In addition, we assume that the liquidation value of the real estate at any time between time 1 and time 2 can be written as $L(\beta) = (1 - \beta)\gamma R_2 + w_2$ for $0 \leq \beta \leq 1$. The improved real estate is assumed to be indivisible at time 1 such that the parties cannot sell off part of the real estate in order to satisfy the mortgage repayment at time 1. Liquidation of the real estate is therefore an all or nothing proposition and

if the entrepreneur does not redeem or maintain his equitable interest in the real estate through a renegotiation of the mortgage prior to time 1, he is assumed to be unable to repurchase the asset.⁸

The debt is a non-recourse loan secured only by the real estate. Both the lender and the entrepreneur are risk neutral. We assume that both the market interest rate and discount rate are 0. The required capital investment is I , and lender is willing to participate in the venture if she expects a return of at least I . Any cash not handed over the lender at time 1 can be reinvested at a rate of $1 \leq s \leq \frac{w_1}{L}$ if and only if the entrepreneur redeems the real estate at time 1 or negotiates full possession of the asset for the balance of time 2 remaining after reinvestment.⁹ Following HM, the rate of reinvestment is at least as high as the market return and perhaps as great as the value of the initial investment.¹⁰

We assume that the project would be undertaken in a first-best world and that the cash flows (R_1, R_2) , land value (w_2) and the lender's liquidation value (γ) generated by the investment are uncertain at time 0.¹¹ After the initial investment is made, but prior to time 1 the uncertainty over these variables is resolved.¹² Assuming that information is symmetric between the entrepreneur and lender, they may choose to optimally renegotiate the contract prior to time 1 subject to the wealth-constraint of the entrepreneur. In any renegotiation we assume that the entrepreneur possesses all of the bargaining power. This assumption is most plausible in a world

⁸ Other models often assume that the secured assets are divisible such that partial liquidation is possible. We suspect that this is less likely the case in the context of real estate markets (imagine a single building on a small parcel of land). Further, allowing divisibility introduces several sub cases into the analysis that do not modify the nature of our primary findings. Therefore, we abstract away from this potential complication.

⁹ This reflects our stylized assumption that whomever is in possession can claim the assets cash flows from that period and that the entrepreneur would not invest any further in the project if he could not capture the returns to his investment in the next period.

¹⁰ We assume that there are no transaction costs from liquidation such that L represents the "costs" of the asset in place.

¹¹ Notice that the uncertainty over R_2 and w_2 means that w_1 and L are also stochastic.

¹² We assume this with no loss of generality since allowing uncertainty to remain over the second period would simply required us to substitute the expectations of the time 2 variables.

where there is competitive lending and the entrepreneur has many opportunities to refinance a project.

The assumption of full entrepreneur bargaining power does present a small discrepancy in our model that deserves explanation. We assumed above that the entrepreneur will not reinvest in the real estate during the second period if he is not the current owner or does not have a claim to future ownership of the real estate. This assumption is driven by the literature on ownership and vertical integration that suggests that individuals or firms that make specific investments in assets will under-invest if they expect their trading partner will expropriate some of the returns from them in future periods (Klein, et. al. 1978, Williamson 1979). Thus, allowing the parties to share bargaining power is more consistent with our assertion of entrepreneur underinvestment than is full entrepreneur bargaining power.

However, we reconcile these differences in the following way. Assuming that the entrepreneur has a claim to the real estate that the courts will enforce and that the real estate is sufficiently valuable, he can always raise new capital, payoff the old lender and enter into a mortgage with a new lender and thereby avoid the old owner's attempt to expropriate cash flows from the project. If he is a tenant on the property following a mortgage default, however, then he no longer has an ownership claim that the courts will enforce and indeed it is likely that the lender can claim any proceeds from the entrepreneur's reinvestment activity during the lease by evicting the entrepreneur or not renewing his lease.

The ultimate focus of the model is on the social value of the mortgage defined as the joint payoffs to the entrepreneur and lenders between following mortgage inception until time 2. Since the entrepreneur makes potentially valuable investments in the real estate, there is no loss in generality in restricting attention to contracts that maximize the entrepreneur's payoff subject

to the lender's participation constraint. In what follows, we consider feasible mortgages, which requires that in addition to meeting the lender's participation constraint, that the entrepreneur's expected payoff be at least w_0 . Figure 1 depicts the time line of this model.

3.3 Payment, renegotiation and default

Consider the common law mortgage in a state when repayment is feasible, $R_1 \geq P$. Whenever $s > 1$, the entrepreneur will pledge the future value of the real estate or his current cash in hand or both to avoid making a payment at time 1 because reinvestment is valuable. However, the most the entrepreneur can be expected to pay the lender at time 2 if they agree to write a new mortgage is w_2 .¹³ Therefore, if needed, the entrepreneur optimally offers the lender a cash payment at time 1 of $P - w_2$, in addition to the maximum credible promise of w_2 at time 2, to make the lender indifferent between a full payoff at time 1 and the newly proposed mortgage.

In addition, the entrepreneur could always threaten to default and limit the lender's payoff at time 1 to L , and so we assume that the entrepreneur never pays or pledges more than $\min\{P, L\}$ to the lender at time 1 when repayment is feasible. Therefore, the entrepreneur is able to successfully renegotiate the mortgage prior to time 1 whenever $R_1 \geq P$ and $R_1 + w_2 \geq \min\{P, L\}$. We present the first two results of the paper based on this development and note that the social value of the real estate investment funded by the mortgage is defined as the total of the payoffs to the borrower and lender during the first and second periods.

¹³ Recall our assumption that the entrepreneur has all of the bargaining power.

Result 1. When $R_1 \geq P$ and $w_2 \geq P$, the entrepreneur can successfully delay repayment of the mortgage debt until time 2 by offering a new mortgage contract to a lender at time 1 that promises a repayment of P at time 2, and the first best realization of the real estate investment, $sR_1 + w_1$, is obtained.

We state this observation as the first result of the paper mainly because it differs from prior studies of debt in an incomplete contracting framework which typically assume that a project's assets fully depreciate by the end of time 2. Essentially, the durability of the real estate and the institutions of real property at common law are able to provide for the possibility of a first best outcome when $s \geq 1$. To see understand this claim, notice that when $s > 1$ it is always sub-optimal for the entrepreneur to pay out cash to the lender since the timing of the repayment diminishes the cash available for reinvestment relative to the first best outcome where all payments are delayed until the reinvestment proceeds are realized. Indeed, full repayment of the loan at time 1 results in a social value equal to,

$$s(R_1 - P) + w_1 + P = sR_1 + w_1 - (s - 1)P.$$

Result 2. Whenever

$$1) R_1 \geq P \text{ and } R_1 + w_2 \geq \min\{P, L\} > w_2, \text{ or}$$

$$2) R_1 < P, R_1 + w_2 \geq L \text{ and } L < P,$$

renegotiation results in partial reinvestment by the entrepreneur when he offers a side payment to the lender at time 1 and a new mortgage that promises a payment of w_2 at time 2. These states result in a second best outcome where the social value of the real estate investment is $sR_1 + w_1 - (s - 1)(\min\{P, L\} - w_2)$.

Result 3. When $P < L$, but $R_1 < P$ and $R_1 + w_2 \geq L$, renegotiation of the common law mortgage still results in partial reinvestment, but also results a loss of social value of $(s - 1)(L - P)$, relative to the second best case.

Notice that whenever $s > 1$, the entrepreneur optimally delays as much of his repayment as possible until time 2 so as to maximize his reinvestment opportunity subject to his ability to credibly commit to no more than w_2 at time 2. In the first case of Result 2, the entrepreneur has the ability to keep the lender's payoff down to $\min\{P, L\}$ because he has the ability to repay at time 1. When the lender knows that the entrepreneur cannot repay the mortgage at time 1, she demands L in order to agree to a new mortgage, and when $P \geq L$ the second best outcome is still obtained.¹⁴ Whenever $R_1 < P$ and $P < L$, however, the entrepreneur cannot keep the lender's payoff down to P and Result 3 states the magnitude of the lost reinvestment revenue.

In particular, there is no renegotiation in the states described in Result 3 that makes both of the parties better off given their threat points when they anticipate that the entrepreneur will default at time 1. The nature of real property institutions that governed the early common law mortgage create this inefficiency. The security offered the lender is "too" strong in states where the real estate has inexplicably low cash flow in the first period, but a relatively high value in the next period.

¹⁴ Recall that the entrepreneur cannot sell the asset in order to repay the mortgage when $L \geq P$.

Only if the entrepreneur is able to credibly promise a sufficient return to the lender in the next period can he avoid default and engage in some reinvestment activity. When $R_1 < P$ and $R_1 + w_2 < L$, the entrepreneur cannot avoid involuntary default at time 1.

Definition. The entrepreneur *defaults* when he does not make the required payment, P , at time 1 and does not otherwise renegotiate the terms of the mortgage with the lender.

Result 4. The social value of the real estate investment is at most $R_1 + w_1$ when $R_1 < P$ and $R_1 + w_2 < L$, that is, when the entrepreneur defaults on the common law mortgage.

When $R_1 + w_2 < L$, the entrepreneur cannot credibly promise to repay the lender enough at time 2 to make renegotiation feasible. Default implies that the social value of the real estate asset is $R_1 + L$ if there is no further involvement of the entrepreneur in the operation of the real estate. However, after default the entrepreneur can successfully offer a lease contract to the lender that improves the total value of the real estate and makes the lender indifferent between leasing the asset to him versus someone else or selling it to a third party.

Assume that a lease entitles the entrepreneur to possession of the real estate. Then the entrepreneur can divert the real estate's cash flow during a lease period, and the lender/landlord will require an up front lease payment in order to hand over possession. In the states where the entrepreneur defaults $R_1 < \gamma R_2$, such that the entrepreneur cannot offer a lease for the entire second period. However, there exists some time period, α , for which $R_1 = \alpha \gamma R_2$ given that $R_1 > 0$. Therefore, the entrepreneur can offer a rent for that time period of $R_1 = \alpha \gamma R_2$ and

receive a return of αR_2 . A lease of length α can then be repeated throughout period 2 (the entrepreneur's payoff from the prior period is always greater than the lease payment required for the next period), and the total payoff to the entrepreneur will be $R_1 + R_2 - \gamma R_2$. The lender's total payoff from this arrangement is $\gamma R_2 + w_2 \equiv L$, where w_2 represents her ownership claim at the end of time 2 and the social investment value of the real estate is then $R_1 + w_1$. This is the maximum value in the default state given our assumption that the entrepreneur will not reinvest as a tenant and cannot repurchase the asset once he defaults. Therefore the social value of the real estate investment is strictly less than in the partial reinvestment cases found in Result 2.

It is important to note that the assumption that the entrepreneur is the most efficient manager of the real estate does not directly drive the inefficiencies in this model. An appropriate lease contract can result in socially optimal production during the second period of the model and therefore ownership does not matter for this reason alone. It is the fact that the entrepreneur may make socially valuable investments during the life of the mortgage contract that results in inefficiencies when the mortgage contract is in place. Fundamentally, these results rely on the fact that entrepreneur is cash constrained and cannot engage in making *both* the required debt repayment and the reinvestment simultaneously.

In general, the first four results reflect the nature of the common law governance of mortgages that creates strong assurances for the lender on one hand, and a particular type of inflexibility on the other when an entrepreneur is cash constrained. In the next section, we pursue the innovations in real estate finance wrought by the courts of equity and compare the modified governance of mortgages to these results.

4. Equitable redemption

4.1 Courts of equity

One of the more confusing aspects of Anglo-American law is that it developed along two distinct fronts: common law and equity. As the common law was originally the law of land, but over time it became rather inflexible with regards to the changing nature of society, unimaginative with respect to remedies and in other cases it simply failed to develop necessary rules or laws altogether (Cribbet and Johnson 1989). The first courts of equity arose in response to these weakness and were said to represent the “king’s conscience.” The courts of equity did not have well defined areas of jurisdiction, but heard extraordinary cases that the common law could not or did not address. Therefore, the decisions of the court of equity were potentially at odds with common law courts and a strange sort of tension existed between the two, although it was claimed that “equity follows the law.”

Courts of equity appear to have been responsible for the development of the modern trust, the cancellation and rescission of contracts and deeds, and for various modifications to contracts concerning real property, especially the mortgage (Cribbet and Johnson 1989). The duality of the court system resulted in the existence of both legal and equitable rights and legal and equitable estates in land, depending on which court system recognized and enforced the property rights. Today, the influence of both equity and common law are merged into a single body of law.

The courts of equity played a crucial role in the development of the governance of mortgages. They did so by enforcing performance in certain situations and by addressing apparent inequities of these contracts on a person-by-person basis. Over time, the case and

person-specific rulings of the equity court created an expectation of well-enforced property rules and in other areas modified the nature of the borrowers' entitlements altogether. For example, the courts of equity enforced certain property rights in the case of mortgages like the right of re-entry. What was unique about equity's influence was that equity could compel the lender to give up possession of the property in favor of the borrower (i.e., equity enforced a real right of the borrower to re-enter). The influence of equity went beyond such simple refinements, however. Indeed, the courts of equity created modern mortgage law by reshaping the existing governance structure provided by real property law. Indeed in modern law, real estate finance law is considered distinct from property law. While the initial motivation of the courts may have resulted from a sense of fairness in individual cases, we argue that what the courts essentially recognized was that ownership of the real estate mattered.

4.2 A period of equitable redemption

There is evidence that the courts of equity began to allow borrowers, on a case by case basis, an additional period of time after default in which to repay the debt amount owed on law day (including interest and expenses) and redeem the real estate asset as early as the late sixteenth century. The first cases were clearly decided on the basis of some hardship suffered by the mortgagor and appear to be an application of similar principles followed by the court of equity in providing relief for issuers of bonds (Turner 1931). Over time, proof of hardship was no longer required and relief was granted almost as a matter of course by the courts of equity.

With this development, lenders were given a corresponding right to petition the court to *foreclose* the borrower's redemption period. If the borrower failed to repay according to the original terms of the mortgage before the foreclosure date, then the lender's unconditional title to the real estate was essentially validated by the court. No one knows exactly why the courts of

equity decided to make this relief available to *all* mortgagors. According to Nelson and Whitman (1994, p. 32),

[w]hen the courts of equity created the equity of redemption, they violated the explicit intention of the parties. They did this by allowing the mortgagor to regain the property by performing the secured obligation after the legal title to the property had vested absolutely in the mortgagee – vested according to the express language of the parties in the mortgage deed and according to the effect the law courts gave to that language.

Turner (1931) argues that the Chancellor and his court were motivated by the opportunity to extend their jurisdiction in their competition with the courts of law.

Thus, the equitable right of redemption was initially an action available to mortgagors that allowed them to redeem ownership of mortgaged real estate if they could repay the debt and costs in a reasonable time after law day. Let β represent a period of time following default in during which the entrepreneur may redeem. Notice that under the common law mortgage, the lender held the right of possession and even if she had promised possession to the entrepreneur in the initial contract, she could regain possession with the help of the courts if the entrepreneur defaulted at time 1 in our model. If the lender did take possession of the real estate, however, it was well established in the seventeenth century that she would be held strictly accountable for any cash flows received during her period of possession (Turner 1931).

The application of a strict accounting rule can be consistent with our model in the following sense. Since we have assumed that the lender cannot produce above market returns during the second period, the court can always order an estimate of market cash flows to be applied in reduction of the entrepreneur's final payment to the lender. We need not assume that the court is able to make either player pay out cash, but only that it can enforce the entrepreneur's ability to redeem the real estate via a reduced payment given reasonable observations about the market. Further, to enforce a period of equitable redemption, the court

needs only to have evidence about whether or not a payment was made at time 1 given that a mortgage was created at time 0.

Proposition 1. The enforcement of a period of equitable redemption when the entrepreneur is unable to sell the asset between time 0 and 1 and the lender can credibly threaten to take possession of the real estate during equitable redemption is socially valuable when $s > 1$.

Proof. To prove this proposition we show that the change in repayment P that makes the mortgage feasible when equitable redemption is enforced increases the likelihood of the full and partial reinvestment cases found in the common law mortgage. Therefore, the states in which the entrepreneur defaults are reduced. Appealing to our model of the common law mortgage we write the lender's payoff for the common law mortgage without the enforcement of equitable redemption and with enforcement respectively as, N and N' :

$$N = \begin{cases} \min\{P, L\}, & \text{for } R_1 \geq P \\ L, & \text{for } R_1 < P \end{cases}$$

$$N' = \begin{cases} \min\{P', L\}, & \text{for } R_1 \geq P' - \beta\gamma R_2 \\ L, & \text{for } R_1 < P' - \beta\gamma R_2 \end{cases} .$$

Suppose the entrepreneur offers a mortgage with repayment amount $P' = P + E\beta\gamma R_2$ when equitable redemption is enforced and where E is the expectations operator taken with respect to the joint distribution of the stochastic variables. Then in expectation, the states which determine the lender's payoffs with enforcement of equitable redemption are unchanged relative to the common law mortgage. However, if there exists a state in which $P < L$ and $R_1 \geq P' - \beta\gamma R_2$ with positive probability, then $EN' > I$ and the entrepreneur's payoff can be increased by offering

some $P' < P + E\beta\gamma R_2$. Therefore the range of states in which full and partial reinvestment is undertaken, respectively are not diminished. That is, $P' - E[\beta\gamma R_2] \leq P$. Since default occurs only in states where $R_1 + w_2 < L - \beta\gamma R_2$ when equitable redemption is enforced, there are also fewer instances where no reinvestment occurs. The expected social value of the mortgage increases because within each of these states, the expected cash flow from the period of equitable redemption, $\beta\gamma R_2$, to debt repayment is larger than the increase in repayment. \square

The creation of the period of equitable redemption did not fully eliminate the underinvestment described in Result 3 when $P < L$, however. In addition, we have ignored other issues with respect to the value of the asset that the entrepreneur might redeem at a future date. However, the courts of equity continued to modify the mortgage slowly over the next hundred years and additional property rights were established for the entrepreneur/mortgagor in the mortgaged real estate.

4.3 Additional features of the equity of redemption

We have thus far assumed that the entrepreneur in our model redeems the same title that he gave up to the lender at time 0. However, at least initially at common law the estate that the entrepreneur redeemed was not protected from claims that attached to the real estate while the lender was effectively its owner. The mortgagee's creditors and spouse, for example, could acquire claims prior to the redemption of the real estate that would prevail over the mortgagor's reinstated claim. By the mid-seventeenth century, however, an important court decision established that the right to redemption included the protection the mortgagor's claim against the mortgagee's creditors and spouse (Turner 1931). In other words, the mortgagor's claim was senior to any claims that attached to title after the mortgage was created.

By 1738, more than one hundred years after the first cases of hardship created the period of equitable redemption, another court decision established the mortgagor was the “owner” of real estate in equity during the course of the mortgage. Turner (1931) argues that the nature of the mortgagor’s rights in fact gave rise to a new and separate estate in land, and Osborne (1970, p. 16) notes this estate could be

cut into lesser estates; it must be conveyed by a formal conveyance with formal limitations; it will descend to the heirs of the mortgagor; it may be devised, mortgaged or entailed; it will prevail against heirs, purchasers, and other successors of the mortgagee; on the mortgagor’s death it is entitled to exoneration against the personal estate of the mortgagor; and the mortgagor has equitable seizin so that the husband is entitled to curtesy.

So in fact, equitable redemption became more than just an extra period of time in which to repay a mortgage. Figure 2 shows a timeline of events established by Turner (1931). The equity of redemption came to embody the entire set of ownership rights that a mortgagor maintained in the real estate. To summarize, these rights include: 1) the right to redeem after the debt has come due within a reasonable period of time, 2) the right to redeem title that is of the same quality as when it was pledged and 3) the right to sell or transfer some or all of one’s “equity” in mortgaged real estate (the so-called estate held by the mortgagor).

Consider how the ability of the entrepreneur in our model to sell his equity stake and repay the mortgage when $L \geq P$ affects the governance of the common law mortgage. Ignoring the equity of redemption for the moment, the ability to sell means that the entrepreneur can limit the lender’s payoff to $\min\{P, L\}$ in all states. This partially justifies our earlier assumption about the entrepreneur’s bargaining power. Let $N = \min\{P, L\}$ be the lender’s payoff. Without the right of equitable redemption, but with the ability to sell his equity stake, the first best outcome still occurs when $P \leq w_2$, however now it does not matter if the entrepreneur has the cash in hand at time 1 or not. Regardless of his ability repay at time 1, the entrepreneur bargains from a

position where he can limit lender's payoff to N and therefore the first best outcome depends only on $P \leq w_2$. Likewise, the partial reinvestment cases no longer depend on the entrepreneur's ability to repay at time 1, only on the ability of the real estate (plus cash in hand) to support debt for another period. Therefore, Results 2 and 3 collapse into a single result that we now restate as Result 2'.

Result 2'. When $R_1 + w_2 \geq N$ and the entrepreneur has the ability to sell his equity stake in the mortgaged real estate, then renegotiation of the common law mortgage results in the second best outcome and the social value of the real estate investment is $sR_1 + w_1 - (s-1)(N - w_2)$.

With the ability to sell his equity interest, when $R_1 + w_2 < N$ and $L \geq P$, the entrepreneur can improve his payoff by selling the asset and then using his cash to secure a lease over the real estate. The impact of equitable redemption in this case is merely redistributive, however. Although the entrepreneur does not default when $L \geq P$, nor does he reinvest in the real estate. Therefore the states where $R_1 + w_2 < N$ still result in outcomes that are inferior to the second best outcome as reported in Result 4. In other words, default is not the only state in which socially inferior outcomes obtain.

We can now write the entrepreneur's payoff, Π , as

$$\Pi = \begin{cases} sR_1 + w_1 - N & \text{for } w_2 \geq N \\ sR_1 + w_1 - (s-1)w_2 - sN & \text{for } R_1 + w_2 \geq N. \\ R_1 + w_1 - N & \text{for } R_1 + w_1 < N \end{cases}$$

In addition we can graph the entrepreneur's payoff as a function of N (Figure 2). The entrepreneur's payoff is represented by the bold line that has two kinks where the payoff function transitions from full to partial and partial to no reinvestment respectively. On the face of it, the higher the rate of reinvestment, s , the steeper the partial reinvestment curve becomes and the more valuable it becomes to keep as much cash in the entrepreneur's hands as possible.

Now consider how the value of equitable redemption in the revised common law mortgage when the entrepreneur has the right to sell. As it turns out, retaining equitable redemption as part of the governance system does not change the lender's expected payoff when the lender still can take possession of the real estate following default. In other words, when the entrepreneur has the ability to keep the lender's payoff down to $N = \min\{P, L\}$, then equitable redemption only has an impact on the boundary between the partial reinvestment and no reinvestment cases.

To see this, notice that if the lender can take possession of the real estate during equitable redemption and receive the cash flow equal to $\beta\gamma R_2$, her threat point is not changed by allowing the entrepreneur to wait until time $1 + \beta$ to repay relative to the mortgage without the enforcement of equitable redemption. At time $1 + \beta$, the entrepreneur is willing to pay $\min\{P - \beta\gamma R_2, (1 - \beta)\gamma R_2 + w_2\}$ to redeem the real estate, where the first term is the court enforced redemption payment and the second term is the liquidation value of the real estate to the lender at time $1 + \beta$. Since the lender already has $\beta\gamma R_2$ in hand, her expected payoff is still EN when equitable redemption is enforced. Therefore, as the rights of the entrepreneur developed at the hands of the courts of equity, it was costless to continue to enforce equitable redemption and equitable redemption improved the social value of the mortgage.

Proposition 2. The enforcement of equitable redemption increases reinvestment in all states relative to a mortgage contract without equitable redemption when the entrepreneur can sell his equity interest and the lender retains the right of possession.

Proof. With the enforcement of equitable redemption, the entrepreneur has the ability to become delinquent at time 1, let the lender retains possession during his period of delinquency and then renegotiate a partial payment at time $1 + \beta$ equal to $N - \beta\gamma R_2 - w_2$ to extend the mortgage until time 2. Therefore, a smaller cash payment is required to make this new contract feasible than before the enforcement of equitable redemption. Previously, the transfer at time 1 had to be at least $N - w_2$. Therefore, some entrepreneurs can now avoid default who could not do so before because $R_1 + w_2 \geq N - \beta\gamma R_2$. We can rewrite the entrepreneur's payoff under this regime as $\hat{\Pi}$, where

$$\hat{\Pi} = \begin{cases} sR_1 + w_1 - N & \text{for } w_2 + \beta\gamma R_2 \geq N \\ sR_1 + w_1 - (s-1)(w_2 + \beta\gamma R_2) - sN & \text{for } R_1 + w_2 + \beta\gamma R_2 \geq N \\ R_1 + w_1 - N & \text{for } R_1 + w_1 + \beta\gamma R_2 < N \end{cases}$$

The results of enforcing equitable redemption in the context of the common law mortgage when the lender has the ability to take possession of the real estate during that period is show in Figure 3.□

If the lender still has a right of possession, but any cash flow received by the lender in possession are applied to the entrepreneur's repayment, then at least some reinvestment occurs whenever $R_1 + w_2 \geq N - \beta\gamma R_2$. If, $R_1 + w_2 < N - \beta\gamma R_2$, then it is always a weakly dominant strategy for the entrepreneur to renegotiate prior to time 1 and not default. Whether the entrepreneur chooses to sell the asset himself or default and then become a tenant, leaving the

lender in possession during a delinquency period allows the lender to capture cash flow that the entrepreneur can capture himself in a lease. In fact, there is no state in which the entrepreneur gains by waiting through the period of equitable redemption and allowing the lender to foreclose on the real estate when the lender can take possession of the real estate during the period of equitable redemption.

As Turner (1931, p. 155) concluded in his investigation of the equitable redemption, the “truth is that the mortgagor and the mortgagee are in practice concurrent owners.” Given that the mortgagor was given the ability to sell during the early eighteenth century, continued enforcement of a period of equitable redemption following default at time 1 improved social welfare at no cost. This result depends crucially on the assumption that during the seventeenth and eighteenth century the lender still held the right of possession of the mortgaged property and the process of foreclosure granted her unconditional title to the real estate if the mortgagor failed to redeem. As the mortgage was transplanted in the U.S., however, alternate theories about the nature of the lender’s interest in the real estate began to emerge in the eighteenth and nineteenth centuries.

4.4 Possession in modern mortgages

Three types of theories are used in a modern context to categorize states with respect to their law on mortgages. The differences between them are not great, but most observable with respect to the rights of the mortgagee to possession of the mortgaged property. It appears that lien theory became the predominate theory almost immediately in the United States (Wechsler 1985).

Title theory corresponds most closely to the traditional common law mortgage in which the mortgage is a conveyance of title to the lender with a covenant to re-convey upon

performance of the obligation by the mortgagor. As such, the mortgagee has the title to the mortgaged property including the rights of possession. Over time, the few remaining title theory states have trimmed the ownership rights of the mortgagee to only those deemed necessary to protect the security interest that the mortgagee holds, but the mortgagee may still legally enter and take possession of the property.¹⁵

On the other hand, lien theory states hold that the mortgagee never holds legal title to the real estate and that only rarely does the mortgagee have a right of possession. The intermediate title theory states feature a compromise – namely that the mortgagee does not have possessory rights until default.¹⁶ Should the mortgagee gain legal possession of the property, called *mortgagee in possession*, under any of these legal theories, the courts generally follow a doctrine that her security interest entitles the mortgagee to retain possession until either redemption or foreclosure (Nelson and Whitman 1994).

Beginning in the eighteenth century, various states in the U.S. began to inhibit the ability of lenders to take possession of mortgaged real estate. Today, the majority of states adhere to the lien theory of mortgages in which lenders are never considered owners of the mortgaged real estate and are rarely allowed to take possession. Even in title theory and intermediate states, possession is heavily scrutinized by the courts. If borrowers and lender's expect that the borrower will retain possession during equitable redemption, the threat points affecting renegotiation of the mortgage are further modified.

¹⁵ According to Nelson and Whitman (1994) these states include Alabama, Arkansas, Connecticut, District of Columbia, Maine, Massachusetts, New Hampshire, Rhode Island, and Tennessee.

¹⁶ Nelson and Whitman (1994) note with less certainty that Maryland, New Jersey, Pennsylvania, Vermont, Georgia, Mississippi, North Carolina and Ohio can probably be deemed intermediate theory states. The 32 states not referred to this and the prior footnote are generally classified as lien theory states.

When the lender is not expected to take possession of the real estate, the entrepreneur claims the second period cash flow during equitable redemption, βR_2 . Now the lender's payoff at time $1 + \beta$ is $\min\{\bar{P}, L(\beta)\}$ where β is assumed to be exogenously given by the courts and $L(\beta) = (1 - \beta)\gamma R_2 + w_2$. When the lender can no longer enforce her right of possession during a period of equitable redemption, denote her payoff as $\bar{N} = \min\{\bar{P}, L(\beta)\}$. Given that the $E\bar{N}$ is decreasing in β , the entrepreneur must offer a larger repayment, call it \bar{P} , in the initial mortgage to the lender relative to the same mortgage where the lender could taken possession.

Proposition 3. When the lender can no longer enforce her right of possession during a period of equitable redemption following default at time 1, enforcement of a period of equitable redemption improve social value for feasible mortgages relative to the common law mortgage without a period of equitable redemption.

Proof. In any state, $\beta\gamma R_2$ represents the upper bound on the expected change in the lender's payoff when she can no longer threaten to take possession of the real estate during equitable redemption since $\max N = L$ and $\max \bar{N} = L(\beta)$. In each state, the entrepreneur now has the right to keep possession of the real estate and use βR_2 to improve the probability and outcome of renegotiating the mortgage at time 1. In all states for a given β , $\beta R_2 \geq \beta\gamma R_2$. Therefore the entrepreneur can offer a mortgage to the lender such that $E\bar{N} = I$ and which improves the expected social value of the real estate asset. Depending on the level of \bar{P} required to make the mortgage feasible, Figure 4 depicts the range of increases in the entrepreneur's payoff that result from inclusion of a period of equitable redemption in a common law mortgage in which the entrepreneur has the right to sell the mortgaged asset. The payoff to the entrepreneur in the

partial reinvestment case may fall anywhere in between the common law partial reinvestment case and the new partial reinvestment curve which represents the total gain if no increase in repayment is necessary to make the mortgage feasible. □

4.5 Clogging

The legal doctrine against the “clogging” of the equity of redemption prevents mortgagors and mortgagees from writing contracts that avoid a period of equitable redemption. The courts firmly established that a mortgagor must be allowed the opportunity to redeem. Today, the equity of redemption and the doctrine against clogging are enforced in both residential and commercial mortgages in the U.S. Recent controversy over the clogging doctrine stems from the fact that if a debt contract is associated with the transfer of property rights to real estate (whether or not it is called a mortgage), the contract has the potential to be “recharacterized” as a mortgage by the courts in the event of a dispute. In other words, courts may enforce a period of equitable redemption and the foreclosure process on the parties, regardless of their express intentions in the original contract.

While in modern law the doctrine against clogging seems perplexing, in the early development of the mortgage, the institutional setting in which the courts of equity and of law held different powers and jurisdictions provides some insight into the rule. In particular, the court of equity could not directly modify the laws about estates and the conveyance of title, so equity used its expanding jurisdiction to create new property rights for the mortgagor. The universal enforcement of the new property rights may be explained by the fact that generally the rules were wealth enhancing and by the fact that universal enforcement would provide lower costs of enforcement.

To consider why the court did not simply enforce a *covenant* for an extra period of time following default in which the entrepreneur could redeem the real estate when that covenant was *voluntarily* included in the mortgage, suppose that such a covenant was included in a mortgage and that the covenant was priced. Then whenever $\bar{P} \geq L$, the lender has incentives to evade her promise to allow a period of equitable redemption because waiting for an additional period of time will reduce her threat point in any renegotiation at time 2 (from L to $L(\beta)$) when the entrepreneur has the right of possession during equitable redemption. Therefore, the court would consistently be called upon to enforce such a covenant, the facts of the promise would have to be established by the court and this process would be costly. More importantly, even if the lender had promised orally or in a separate document to allow the borrower to redeem at a later date upon default, there was no rule at law to stop her from selling the asset. Recall that if the borrower defaults at time 1 by not repaying, the lender becomes the unconditional owner of the real estate at common law. Intervention by the courts would almost certainly occur *after* such a sale and then resolution would be complicated by the involvement of a third party who purchased the real estate after the entrepreneur's default.

Therefore, one way to minimize the cost of conflicts with common law and the cost of enforcing a right of equitable redemption was to allocate the right of redemption to borrowers in all mortgage contracts. While some costs might still be incurred, the presumption that all borrowers have a right to equitable redemption greatly reduces the time and costs of enforcement. Knowing that enforcement was more probable, the threat point of the lender was effectively modified. In addition, all third parties had clear expectations that a title that was transferred to a lender without a foreclosure process was subject to a mortgagor's claim.

In effect, the court of equity's decision to enforce equitable redemption in all mortgages made the borrower and lender joint owners of the real estate by mitigating the harshness of the common law mortgage and re-establishing each party's threat point in renegotiation of the mortgage. This is consistent with Turner (1931) and other's assertions that equitable redemption is in fact an estate in land and the modern assumption that the mortgagor is in fact the "owner" of mortgaged real estate. In turn, the creation of the equity of redemption and the doctrine against clogging resulted in a new governance system for Anglo-American mortgages that became forever distinct from real property law.

5. Conclusion

The original common law mortgage relied directly on well-established real property laws in order to provide security to lenders for a debt. The mortgage was a valuable financial contract because of the credibility that a lender's property rights to the real estate could be enforced and because of the durability of the real estate that made extensions of the mortgage feasible when further investment opportunities were identified by the mortgagor. However, not all socially desirable investment could take place when a mortgagor had to renegotiate the terms of his mortgage and he faced wealth constraints. Under various institutional settings, equitable redemption is a valuable innovation in real estate finance that establishes the mortgagor's ownership rights on par with that of the lender and reduces some renegotiation problems that lead to underinvestment.

A period of equitable redemption is still enforced in mortgages in all states, although the precedent for how long the period lasts varies from state to state. In addition, other statutory redemption rights were created by law in the eighteenth and nineteenth centuries that allow mortgagors to redeem *after* foreclosure and these laws remain on the books in about 17 states

(Baker, et. al. 2004). Further, the adoption of foreclosure by sale has largely replaced strict foreclosure. In the context of our model, this process restricts the lender's payoff to the agreed upon repayment in all states of the world.

Our analysis may in fact understate the value of a period of equitable redemption if one considers the option value of waiting to default (Kau and Kim 1994; Ambrose and Buttimer 2000). In addition, our interpretation of a period of equitable redemption is consistent with that of Ambrose and Buttimer (2000), in that the ability to delay repayment of the mortgage is in effect a low-cost loan to the mortgagor during this period. We submit that this low cost loan can improve the value of mortgaged real estate assets in both a residential and commercial context.

While we argue that the value of equitable redemption was further enhanced by its universal enforcement in all mortgage-like financial contracts in its early history, we make no such conclusions about the doctrine against clogging in modern financial markets, especially in commercial real estate markets. Relatively new financial innovations like sale and leasebacks, equity kickers and certain types of mezzanine financing may be interpreted as attempts to evade the doctrine against clogging by giving lenders ownership rights to the real estate in certain circumstances. Tracht (1999) suggests that asymmetric information may justify the enforcement of a doctrine against clogging in modern mortgages which is consistent with the theoretic work of Aghion and Hermalin (1990), but no research has been brought to bear on this question in the context of commercial real estate markets.

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Figure 1. Timeline of Model

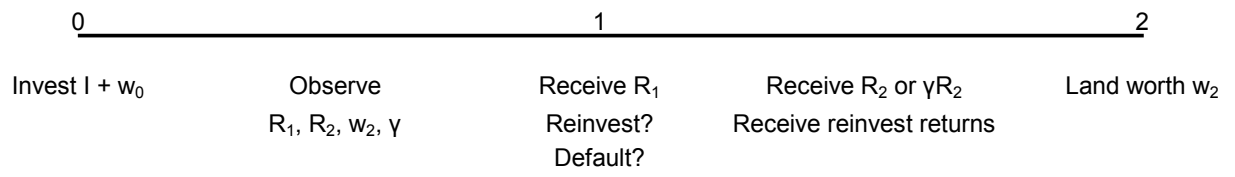


Table 1. Equity of Redemption

Equity of redemption: From exception to estate in land (Turner 1931)	
1590	First case of mortgage relief
1610	Increasing use of redemption due to fraud/hardship
1620	Redemption allowed as matter of right
1630	First foreclosure case
1640	Courts oppose the "clogging" of redemption right
1650	Phrase 'equity of redemption' coined
1660	Equity of redemption is an interest in land
1670	Mortgagee rights are "just" security
⋮	⋮
1740	Equity of redemption is an estate in land

Figure 2. Entrepreneur's Payoff Function for the Common Law Mortgage

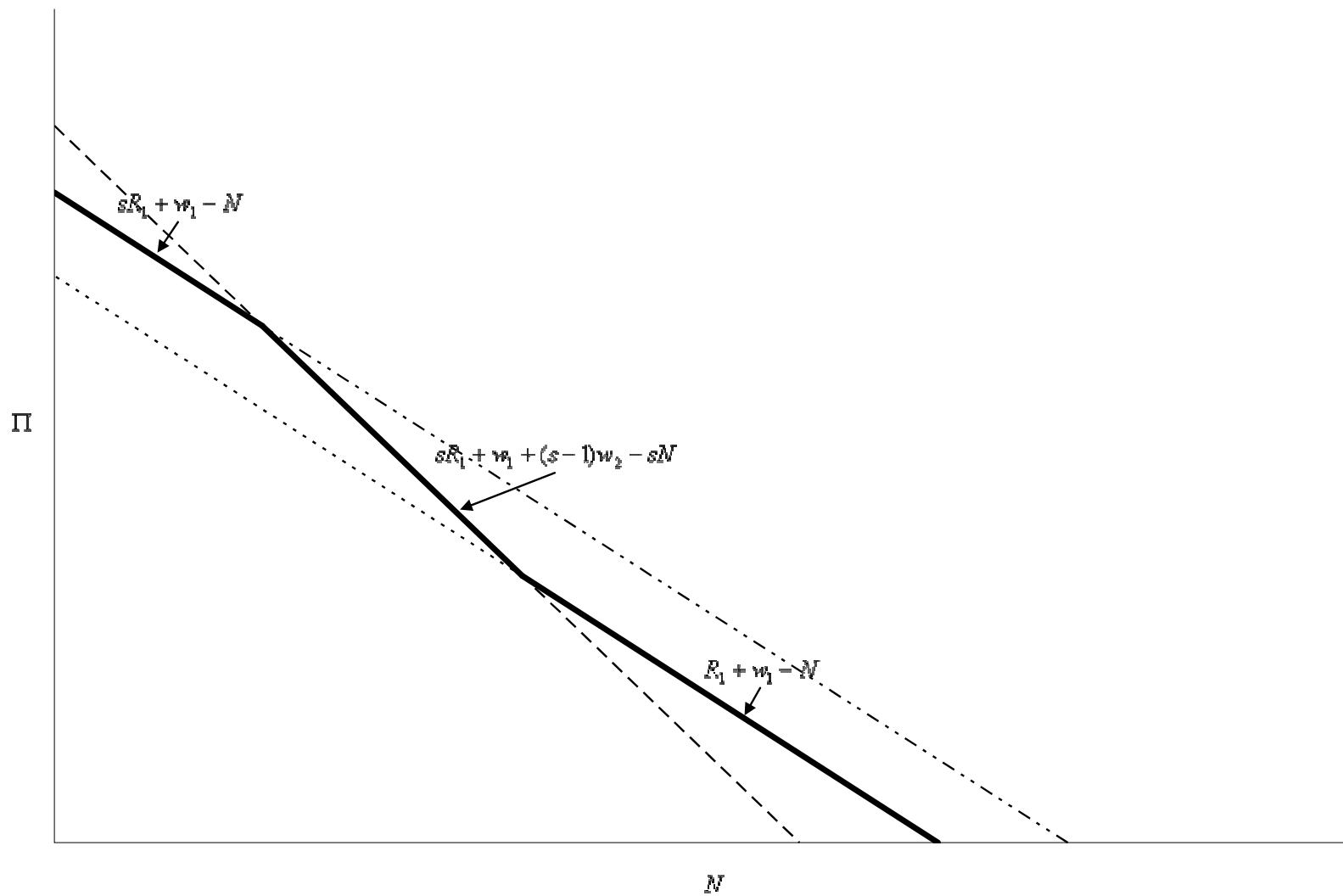


Figure 3. Entrepreneur's Payoff Function with Equitable Redemption and Lender Possession

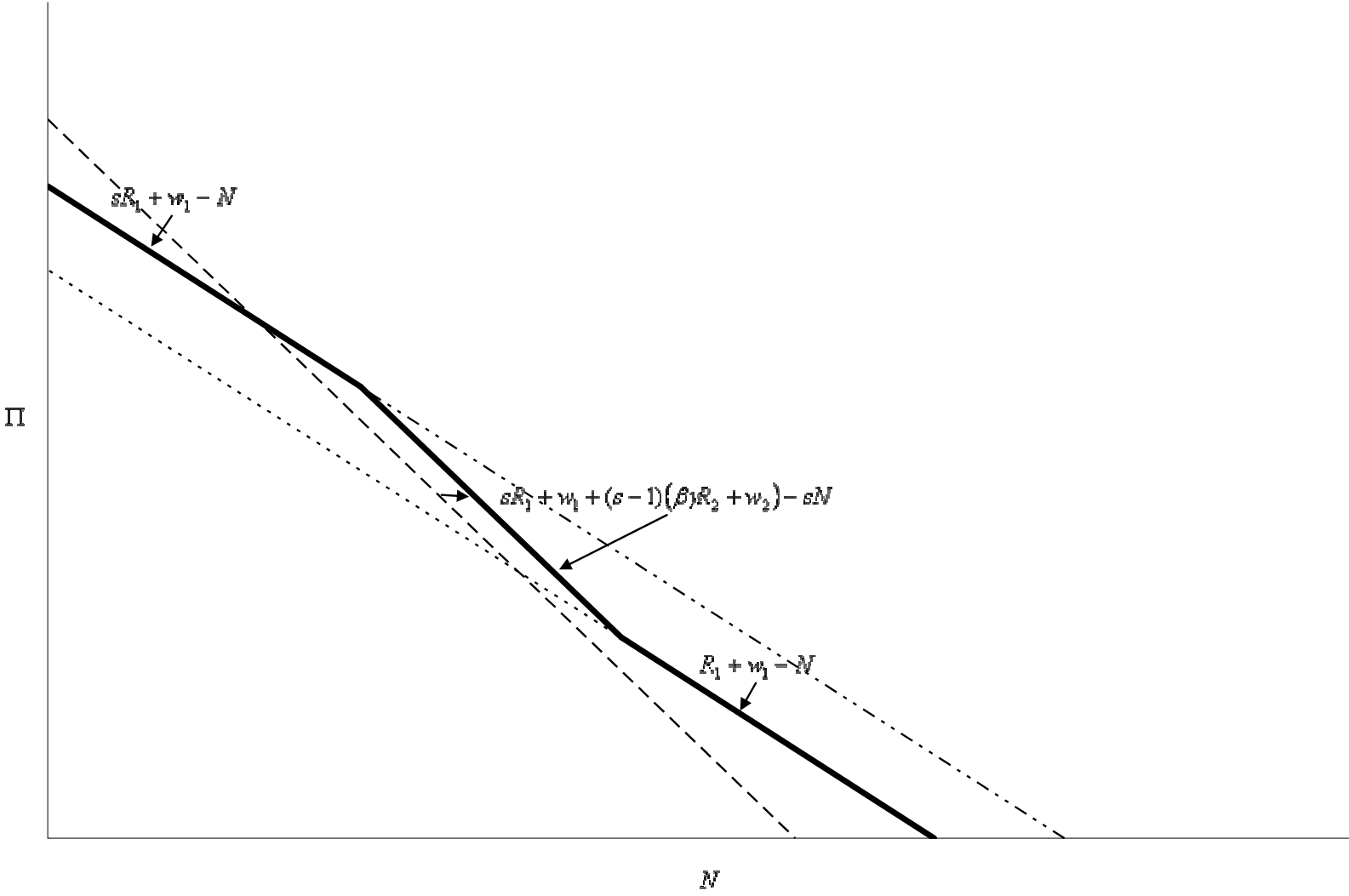


Figure 4. Entrepreneur's Payoff Function with Equitable Redemption

