

## **HYPOTHECATION IMPAIRMENT AS A COMPONENT OF A DISCOUNT FOR LACK OF MARKETABILITY**

*By Joseph LaPray, ASA*

The purpose of this article is to suggest a methodology for measuring one component of a discount for lack of marketability (“DLOM”) applicable to the valuation of ownership interests in privately-held enterprises when compared to ownership interests in publicly traded entities. Differences in value between publicly traded and privately held entities may be attributed to numerous causal factors including hypothecation impairment, or the difference in value between two otherwise identical assets when one asset is acceptable as collateral for a loan and the other asset is not.

Hypothecation impairment measures an opportunity cost borne by investors in non-marketable securities during the period of ownership. This opportunity cost is one component of a DLOM. Other components of a DLOM may include the time value of money during the marketing period when a buyer is being sought, transaction costs, and other factors. Measurement of the impact of an extended marketing period and high transaction costs (relative to the speed and ease of selling a marketable security) on a DLOM has been the subject of many other studies and is beyond the scope of this analysis. Hypothecation impairment measures one factor that would account for the observed difference in value between marketable securities and non-marketable securities.

One advantage of owning publicly traded stock versus stock in a privately-held entity is that, all else being equal, lenders will generally accept the former as collateral for a loan, but not the latter. Lenders making personal loans usually require borrowers to provide a personal guarantee that may involve a blanket pledge of personal assets, including stock in a privately-held business. While banks will accept a pledge of all of a borrower’s assets when making a personal loan, personal assets of uncertain value are not regarded as hard collateral that can be used in calculating a loan-to-value ratio for a secured loan. If the borrower’s portfolio of assets includes publicly traded stock, this stock can be used as hard collateral for a secured loan. Circumstances where lenders accept stock in privately-held companies as loan collateral involve borrowers with ideal characteristics from a lender’s perspective and some or all of the following conditions regarding the company issuing the stock:

- The company is large and financially strong.
- The company is a customer of the bank.
- The shares pledged as collateral may be put back to the issuing company at a defined price.

While there may be exceptions under circumstances such as the above, banks generally do not accept minority ownership interests in private businesses as loan collateral. All else being equal, the owner of an asset that cannot be hypothecated incurs an opportunity cost that is not borne by the owner of an asset that can be hypothecated.

For purposes of illustrating the effect of hypothecation impairment on the value of an ownership interest in a private company compared to an ownership interest in a public company, we make the following case assumptions:

Assumption No.1: Asset A is a minority ownership interest in a publicly traded company and has a value of \$1,000,000.

Assumption No. 2: Asset B is a minority ownership interest in a privately-held company and has a value of \$1,000,000 on a minority marketable interest basis (i.e. an appropriate discount for lack of marketability is not reflected in the \$1,000,000 value).

Assumption No. 3: The only difference between Asset A and Asset B is that Asset A is publicly traded and Asset B will never become publicly traded.

Assumption No. 4: The owners of both Asset A and Asset B are ideal borrowers from a lender's perspective, even without Assets A and B in their portfolios.

If the owner of Asset A were to ask a banker for a loan, he or she would have the option of offering Asset A as collateral. Given market conditions in the lending industry and the bank's aggressiveness in assuming risk, the banker would determine a loan-to-value ratio for the collateral and the interest rate to be charged on the secured loan. In order to increase its profit the bank will seek to maximize both the size of the loan and the interest rate without either exposing itself to undue credit risk or losing business to a competitor that charges lower interest. The bank's determination of the loan-to-value ratio will depend on the market conditions in the lending industry.

The following three lending market variables must be determined in order to calculate hypothecation impairment.

1. The required loan-to-value ratio as of the specific valuation date assuming marketable securities are used as collateral. For the purposes of this illustration, a loan-to-value ratio of 80% will be used.
2. The fixed interest rate for a term loan secured by marketable securities to an ideal borrower. For purposes of this illustration, a fixed interest rate of 6.8% will be used for a secured loan.
3. The fixed interest rate for an unsecured loan to an ideal borrower. For purposes of this illustration, a fixed interest rate of 7.2% will be used for an unsecured loan.

Given the above assumptions and values, the amount that can be borrowed using Asset A as collateral is:

Value of Asset A (publicly traded stock)	\$1,000,000
Loan-to-value ratio required by bank	<u>x 80%</u>
Maximum amount that could be borrowed using Asset A as collateral	<u>\$ 800,000</u>

The value of Asset B on a minority, marketable interest basis is also \$1,000,000, but because it is not publicly traded lenders will not accept it as collateral and an \$800,000 loan to Asset B's owner will be unsecured. Even though Assets A and B are both owned by individuals with ideal characteristics as borrowers there is greater risk to the lender in making an unsecured loan than in a secured loan. All else being equal, in order to balance the greater risk of an unsecured loan the lender would charge a higher interest rate than on a secured loan. Under the assumptions of this illustration, the interest rate for an unsecured loan to an ideal borrower is 7.25 or 40 basis points higher than on a secured loan and the additional annual interest cost arising from the fact that Asset B cannot be hypothecated is therefore:

Unsecured loan principal	\$ 800,000
Incremental interest rate on an unsecured loan versus a secured loan	<u>x .004</u>
Additional annual interest expense	\$ <u>3,200</u>

If the owner of Asset B did not have to pay the \$3,200 additional interest per year (pretax) he or she could loan that sum out to a borrower with similar risk characteristics and earn an annual return of 7.2% (pretax). Capitalizing the \$3,200 additional annual interest expense at 7.2%, the hypothecation impairment related to Asset B's lack of marketability is calculated as follows:

$$\frac{\$3,200}{7.2\%} = \$44,444$$

The \$3,200 additional annual interest cost arising from the inability to hypothecate Asset B is capitalized rather than present valued because we assumed that Asset B, like most privately-held entities, will never become publicly traded. If a hypothetical holding period for Asset B were assumed the sale price at the end of the holding period would still reflect the hypothecation impairment inherent in the asset acquired by the buyer.

The value of Asset B, less the hypothecation impairment caused by lack of marketability is therefore:

Value of Asset B on a minority marketable interest basis	\$ 1,000,000
Less: Hypothecation impairment	<u>(44,444)</u>
Value of Asset B recognizing hypothecation impairment component of DLOM	\$ <u>955,556</u>

Given the assumptions of this illustration, a hypothecation impairment component of a DLOM of approximately 4% to 5% is appropriate.

The above illustration incorporated assumptions regarding loan-to-value ratios and interest rates on secured versus unsecured loans. There is no centralized lending market information source that reports the loan-to-value ratios and interest rate data needed for

appraisers to calculate hypothecation impairment. Appraisers cannot independently determine these variables without consulting a banker or other lender. While different lenders can be expected to provide different numbers for the above variables, credit markets are competitive and lenders must align the terms and prices of their loans with overall market conditions. Due to variations between lenders and the imperfect lending market data available to appraisers, hypothecation impairment conclusions are best stated as falling within a reasonable range rather than as a single point conclusion.

Hypothecation impairment analysis is equally applicable to ownership interests in privately held C corporations, S corporations and partnerships, as long as the marketable interest value has been determined. Hypothecation impairment recognizes one opportunity cost borne by owners of non-marketable securities. Depending on the unique circumstances of each situation, other factors can be expected to affect the appropriate DLOM. In some cases, a hypothecation impairment calculation may provide an indication of the minimum level of an appropriate DLOM. For example, suppose that a security in a closely-held business has an attached put option enabling the owner to sell the security back to the issuing company at a marketable interest value. In many (but not all) cases this closely-held security would still not be acceptable to a bank as loan collateral and therefore hypothecation impairment would apply. Under these circumstances, the marketing time, transaction cost and other components of the DLOM would be zero and the only DLOM would be due to hypothecation impairment.

## **Summary**

The owner of a marketable security has the option of using that security as loan collateral. The owner of a non-marketable security does not have the same option and therefore incurs an opportunity cost in the form of a higher interest rate when borrowing money. Hypothecation impairment measures this opportunity cost.

Hypothecation impairment analysis does not encompass all of the factors that determine a DLOM and by itself does not yield a high discount. The importance of hypothecation impairment analysis is that it can estimate a minimal DLOM applicable to almost all closely-held securities without reference to either theoretical holding periods or to restricted stock or pre-IPO studies.

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*Mr. Lapray, ASA, is a Minneapolis, Minnesota-based Senior Business Advisory Analyst in the Business Valuation Services unit of Wells Fargo Private Client Services. This article appeared in the Business Valuation Review, September 2002.*