

## **Issuer-oriented Underpricing, Share Marketability, and Share Value**

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### **ABSTRACT**

Initial public offerings (IPOs) attract academic interest largely because of the price increase between the offering price and subsequent public market-trading price. The shareholder wealth loss ostensibly implied by this “underpricing” is a major reason this phenomenon is considered a financial anomaly. In this paper we argue that the traditional measure of underpricing, as well as those developed by Dawson and Barry are inadequate measures of shareholder wealth change, because they neglect an essential difference between the private and public marketplaces. This difference is the dramatically increased share marketability created when a firm becomes tradable in the public market. To better specify the wealth effects to issuing shareholders, we incorporate a marketability component into Barry’s model. The resultant model is consistent with shareholder wealth maximization, the majority of empirical evidence on IPOs, and a growing body of financial theory literature.

*JEL: G24, G10*

*Key Words: Initial Public Offering (IPO); Valuation; Marketability; Liberalization*

## I. INTRODUCTION

The underpricing of initial public offering (IPO) is shown to be a persistent characteristic of the financial marketplace in Beatty and Ritter (1986) and numerous other articles. Underpricing occurs when the secondary market price exceeds the offering price and is traditionally calculated as the percentage change between these two prices. Prior to Dawson (1987) and Barry (1989) this calculation was perceived to measure the wealth reduction that issuing shareholders suffer whenever their offering is underpriced. This apparent loss in wealth by rational economic agents is a major reason why IPO underpricing is considered a financial anomaly.

In this article, we attempt to change the perspective from which IPO underpricing is viewed. First, we formalize the notion that is often mentioned in the financial press but generally ignored in academic literature -- going public is a wealth *increasing* activity. We argue that the wealth increase results from the increased marketability of firm shares. In the course of our arguments, we draw attention to the fact that the IPO market, like international securities markets and the market for 144 Letter Stock, segments on marketability and that this segmentation has value implications. In the parlance of international finance, when a firm goes public, trading in its share is "liberalized."

For our purposes, we define marketability as the ability of the owner to sell, transfer, or trade the asset at will. Under this definition, the typical domestic owner of publicly-held stock in a U.S. corporation owns a fully marketable asset, while the owner of stock in a privately-held firm owns an asset of highly restricted marketability. We discuss the importance of share marketability in detail in Section IA, but for the moment note that marketability is a far more confined and readily identifiable notion than liquidity. It relates to the legal right to be sold; a right that attaches to the asset itself and does not directly involve such liquidity-related concepts as depth or breadth of the market. Eliminating those types of assets that are contractually convertible to cash (e.g., savings accounts), being marketable is a necessary, but not sufficient, condition for an asset to be liquid.

If it can be established that issuing shareholder wealth increases in an IPO, it becomes plausible to view underpricing as a *cost paid* by issuing shareholders to increase the marketability of their shares and their wealth. Once we view underpricing as a cost, the more palatable question of inquiry becomes: "Is underpricing a reasonable price to pay for the increase in wealth generated by the public trading of shares?" Underpricing may actually be an insignificant price to pay for the associated wealth increase, but this will never be recognized under the current focus of researchers. While we do not attempt to answer this question directly, we offer a recalculation of the Lotus example in Barry (1989) to show that underpricing may be a much more rational result from the perspective of issuing shareholders than previously perceived.

The paper progresses as follows. Section II defines the IPO market, contrasts the pre-IPO private market for a firm's shares with the post-IPO public market and presents arguments and evidence that the increased share marketability created when a firm goes public increases firm value. Section III shows how the models of Dawson and Barry are inadequate to accommodate for increases in marketability that result from

a jump from the private to the public market. Section IV develops an alternative view of issuer oriented underpricing. Section V re-computes an example used by Barry. The final section contains the summary and conclusions.

## II. MARKETABILITY AND VALUE INCREASES IN AN IPO

At its core an IPO market is a mechanism to transform privately-held firms with shares of restricted marketability into publicly-held firms with fully-marketable shares. The common view that an IPO is intended to raise new capital for the firm through the offering of primary shares provides only one reason the IPO market exists. When a firm goes public, dramatic changes occur in the ownership characteristics and rights that implicitly attach to new and existing shares. For a privately-held firm, ownership transfers of even a small number of shares are logistically difficult, costly, and subject to legal restrictions on the number of individuals to whom shares can be sold. Once a firm has gone public, these drawbacks to ownership transfers are significantly reduced. Conceptually and legally, the public and private markets for firm shares segment on marketability.

The fact that an IPO liberalizes and reduces restrictions on share marketability is obvious, but frequently ignored. In the next section we provide evidence that increases in share marketability increase share value, which logically leads to the conclusion that IPOs increase share values above private market prices.

### A. Marketability and Value

There is abundant empirical and theoretical evidence that increases (decreases) in marketability are sufficient to generate increases (decreases) in value. An obvious fact in support of this is that corporate shares differ in the type and size of audience to whom they can be freely sold or transferred. Private market shares cannot be sold to whomever a shareholder wants, whenever he or she wants -- the 1933 Securities Act, among others, prohibits it. With this the case, both the judicial courts and the Internal Revenue Service (IRS) acknowledge that a privately held firm is less valuable than a publicly-held, equivalent counterpart.<sup>1</sup> Pratt (1989) cites various studies that indicate that restricted public market shares (e.g., 144 Letter Stock) receive discounts from 25 to 50 percent below unrestricted public market shares. Amihud and Mendelson (1989) and Silber (1991) cite similar values. Blackwell and Pavlik (1999), in a study of firms taken public during 1989-90, find that the average share values in the public secondary market are more than 250% percent higher than the corresponding share values in the private market.<sup>2</sup>

Another equally obvious example of the effects marketability has on value comes from the realm of employee stock options. These options are nonmarketable and exercisable only by the person to whom they were issued. Since the holder cannot sell them, these options are often exercised early because the holder needs funds. Early exercise due to the lack of marketability destroys any time premium the options have over and above their intrinsic value.

Investment barriers to cross-border ownership of country shares are analogous to the marketability restrictions that exist across private and public markets. Hietala (1989) finds that Finnish shares without international trading restrictions trade at price premiums of 11.7 to 41 percent relative to the shares in the same firms with trading restricted solely to Finland. Henry (2000), in a study of twelve first time stock market liberalizations finds that, on average, the liberalization is preceded by a total revaluation of 38% in U.S. dollar terms. Other studies in international finance yield similar results, and it is widely acknowledged that understanding international capital market segmentation is an important challenge for international finance.<sup>3</sup>

Amihud, Mendelson, and Uno (1999) show that the reduction in the size of a stock's trading unit in order to allow more investors to buy the stock is associated with a significant increase in the stock price. In other words, they find that activities that increase a firm's investor base increase its stock price. IPOs, of course, involve an abrupt and massive increase in a firm's potential investor base.

Note that the four examples of value differences just cited involve restrictions in trade, not differences in information. Information asymmetries are unnecessary to explain value differences when restrictions on marketability exist. If differences in marketability are necessary for the distinction between public and private markets to exist but differences in information are not, then, by *Occam's Razor* we should first focus on marketability when examining possible value changes across the public/private dimension.

In addition to the essentially empirical support just cited, theoretical support also exists for the idea that private market shares should be less valuable than public market shares. Merton (1987) develops an incomplete information model in which the market for a given security segments on who has knowledge of the security. Investors with knowledge of a security constitute its investor base and, all else equal, securities with larger investor bases have higher valuations.<sup>4</sup> To the extent that private market firms are less visible than public market firms, private firms will, consistent with Merton, receive lower share values. Merton's model receives empirical support in Kadlec and McConnell (1994), Foerster and Karolyi (1999), and Amihud, Mendelson, and Uno (1999).

Mauer and Senbet (1992), in attempting to explain traditional underpricing, develop a theoretical model in which the market for shares segments on investor access--that is, on who can buy the security.<sup>5</sup> Their notion of access is essentially marketability from the buyer's perspective. The combination of this access-based segmentation and an absence of a perfect public market substitute for shares results in lower offering prices relative to subsequent public market prices (traditional underpricing). Mauer and Senbet show a positive empirical relationship exists between the traditional measure of IPO underpricing and increased investor access.

More recently, Longstaff (1995) applies option-pricing techniques in developing a theoretical model for an upper bound on the value of marketability. Longstaff, similar to Mauer and Senbet, views his model as helping to explain IPO underpricing, but does not address the even more dramatic increase in marketability across the public/private dimension.

Taken together, the empirical evidence and theoretical arguments provide justification for a premise that an increase in share marketability is sufficient to generate an increase in share value.<sup>6</sup> Thus, in an IPO, share values should increase across the private/public dimension. In the next section, we incorporate the value implications of the changes in share marketability into a measure of issuer oriented underpricing.

### III. ISSUER ORIENTED UNDERPRICING-THE DAWSON AND BARRY ARTICLES

Dawson (1987) and Barry (1989) each show that the traditional measure of underpricing miscalculates the wealth impact to issuing shareholders. Dawson suggests that the dilutive effects of the offering can result in an overstatement of this wealth impact. Barry's work involves a correction to Dawson's, in that Barry notes that the proportion of personal shares sold on the IPO influences the wealth impact. This correction leads Barry to conclude that Dawson's underpricing measure overstates the wealth reduction whenever issuing shareholders retain some of their personal shares.

However, an unfortunate requirement of both the Dawson and Barry models is that IPO underpricing occurs only when the private market share price,  $P^*$ , exceeds the public secondary market share price,  $P_m$ . In the models, it must be that  $P^* > P_m > P_o$ . This requires issuers to lose not only the difference between the public market price and the offer price ( $P_o$ ), but also the difference between the private market price and the public market price ( $P^*-P_m$ ). From our arguments presented above, we cannot believe that this requirement is valid. From all evidence, issuing shareholders should experience a wealth increase upon taking their firm public and this wealth increase has a readily identifiable source -- increased share marketability. However, while this wealth increase is obvious to issuers and practitioners, it has not been directly addressed in the literature to date.

To attempt a correction of the previous works, note that the arguments of both Dawson and Barry begin with the assumption of no information asymmetry after the offering. This assumption implies that the public market price ( $P_m$ ) reflects the private market value of the firm prior to the offering ( $V_{old}$ ) and the new paid-in capital ( $S_{new}P_o$ ) where  $S_{new}$  is the number of new primary shares offered. Ignoring investment banker fees and other transaction costs, and letting  $S_{old}$  represent the number of secondary shares outstanding prior to the offering yields:

$$P_m = \frac{V_{old} + S_{new} P_o}{S_{old} + S_{new}} \quad (1)$$

The numerator in (1) is the private market value of the firm plus the value of any new primary shares offered. The denominator in (1) is the total number of shares outstanding after the IPO. The private market share price,  $P^*$ , equals  $V_{old}/S_{old}$ . Substituting  $P^*$  into (1) yields an expression for the private market price:

$$P^* = P_m + \frac{S_{\text{new}}}{S_{\text{old}}}(P_m - P_o) \quad (2)$$

By inspection of (2), we see that whenever no new shares are sold on the offering (i.e.,  $S_{\text{new}} = 0$ ), the private market price equals the public secondary market price ( $P^* = P_m$ ). As the number of new shares offered increases, the private market price increases by the amount the shares are underpriced ( $P_m - P_o$ ) multiplied by the ratio of new to old shares.

To this point there is no disagreement between Dawson and Barry. However, from (2) Dawson moves directly to a measure of issuer-oriented underpricing [ $UP_D = (P^* - P_o)/P_o$ ]. Barry refines (2) into a measure that correctly allows for issuers to retain some shares or sell them all on the offering. Barry shows that whenever the IPO contains primary shares and there is underpricing, it is the case that  $P^* > P_m > P_o$ , and issuing share holders receive less than they could have by keeping the firm private. Based on the evidence and arguments we offered in Section II, the model in (2) is incomplete. Specifically, the increased marketability of shares issued into the public domain is ignored and from our arguments it should be the case that  $P_m > P_o > P^*$ . In Section IV, we correct for this omission.

#### IV. AN ALTERNATIVE VIEW OF ISSUER ORIENTED UNDERPRICING

We have argued that a marketability-induced value difference across the private/public dimension implies an increase in share value upon a firm going public. Label this gain “ $M$ ” and assume for the sake of simplicity that this value is additive and positive.<sup>7</sup> An intuitive way to view  $M$  is as the value of the right to transfer ownership in the public market with its enormous investor base. Expression (1) is now rewritten:

$$P_m = \frac{V_{\text{old}} + S_{\text{new}} P_o + M}{S_{\text{old}} + S_{\text{new}}} \quad (3)$$

The numerator in (3) merely decomposes the public market trading price after the offering into three components; the pre-offering private market value, the amount of any new capital raised, and the value of increased share marketability. From (3) the equation for the private market price is:

$$P_p = P_m + \frac{S_{\text{new}}}{S_{\text{old}}}(P_m - P_o) - \frac{M}{S_{\text{old}}} \quad (4)$$

We denote this imputed private market price “ $P_p$ ” to distinguish it from Barry’s  $P^*$ .<sup>8</sup> As displayed, (4) is identical to Barry’s  $P^*$ , except for the final term on the right hand side,  $-M/S_{\text{old}}$ .  $M/S_{\text{old}}$  is the per share value added to the private market price as a result of the firm having gone public. Therefore, this value is subtracted from the Barry measure to

give a more plausible rendering of the private market price. From (4), one expression for  $M$  is:

$$M = S_{old}(P_m - P_p) + S_{new}(P_m - P_o) \quad (5)$$

Although (5) applies only to IPOs where issuing shareholders do not sell any of their personal shares, it has the virtue of simplicity.<sup>9</sup> The term  $S_{old}(P_m - P_p)$  represents the wealth increase achieved by the issuing shareholders in an IPO when the shareholders retain all their personal shares. The term  $S_{new}(P_m - P_o)$  reflects any IPO under- or overpricing and shows the wealth change to the initial buyers of the IPO. When there is IPO underpricing, the gain to going public is split between the issuers and the initial buyers of the IPO. This is a more rational and believable result than in Dawson and Barry -- here underpricing results in a wealth gain to issuing shareholders rather than a component of a larger loss as it does in Dawson and Barry. In fact in (5), holding  $P_o$  constant and assuming  $P_o > P_p$ , the greater is any IPO underpricing, the greater is the gain to both issuing shareholders and the initial buyers of the IPO. This is an important result as it offers a plausible rationale as to why issuing shareholders do not seem to be overly concerned about high levels of underpricing -- it may be that the higher the level of underpricing the more their personal wealth increases.

One of Barry's contributions was to show that there are disparate wealth impacts between those issuers who sell all their personal shares on the IPO and those shareholders that retain some shares. Incorporating this difference into the model presented in (5) requires additional notation. Let  $\alpha$  represent the percentage of pre-IPO secondary shares retained by issuing shareholders and  $(1 - \alpha)$  be the proportion of pre-IPO secondary shares sold on the offering. Expanding (5) with these proportions yields the general result:

$$M = \alpha S_{old}(P_m - P_p) + (1 - \alpha)S_{old}(P_o - P_p) + (1 - \alpha)S_{old}(P_m - P_o) + S_{new}(P_m - P_o) \quad (6)$$

In (6), the terms  $\alpha S_{old}(P_m - P_p)$  and  $(1 - \alpha)S_{old}(P_o - P_p)$  respectively represent the gains to going public that accrue to issuing shareholders on their retained and offering-sold shares respectively. The terms  $(1 - \alpha)S_{old}(P_m - P_o)$  and  $S_{new}(P_m - P_o)$  represent the amount of any IPO mispricing accruing to the initial buyers of the IPO from their purchases of secondary shares and primary shares, respectively. From (6), those issuing shareholders who do not sell shares on the offering and the initial buyers of the IPO both benefit when the secondary market price is higher than expected. When issuers do sell personal shares on the offering (i.e.,  $\alpha < 1$ ), and the IPO is underpriced ( $P_o < P_m$ ), there is some direct wealth transfer from issuers to initial IPO buyers. The issuing shareholders who allow the wealth transfer are not obviously irrational as long as they receive offsetting compensation in such forms as increased share values from going public, increased employee stock option values, and increased opportunities for future sales.

When the inequality,  $P_m > P_o > P_p$ , holds, issuing shareholders need not forfeit important amounts of personal wealth in an underpriced offering. More generally, as long as the sum of  $\alpha S_{old}(P_m - P_p)$  and  $(1 - \alpha)S_{old}(P_o - P_p)$  is positive, the issuers gain monetarily when their firm goes public. In other words, as long as the value of the underpricing of the issued shares is less than the wealth increase from the retained shares, issuing shareholders increase their wealth via the offering. To see how the restrictions of Barry's model affect our perceptions of the wealth transfers of IPOs, in the next section we apply expression (6) to the Lotus Development Corporation example authored by Barry.

### V. BARRY'S LOTUS EXAMPLE REVISITED

Barry provides an application of (2) to the 1983 offering of Lotus Development Corporation. The data are as follows:

$P_o$ :	\$18,
$P_m$ :	\$25,
$S_o$ :	11,500,000,
$S_n$ :	2,500,000,
$\alpha S_o$ :	11,000,000,
$(1-\alpha)S_o$ :	500,000.

Based on the traditional measure of underpricing, Lotus is underpriced by  $(25 - 18) / 18 = 38.9\%$ . Using expression (2), Barry calculates  $P^* = \$26.52$ , which is his imputed private market price. Based on this value for  $P^*$  and Dawson's measure of underpricing,  $UP_D = (P^* - P_o) / P_o$ , issuing shareholders lost  $(26.52 - 18) / 26.52 = 32.13\%$  on those shares that they sold on the IPO. Barry notes that their loss was only  $(26.52 - 25) / 26.52 = 5.73\%$  on their retained shares. Even though their percentage losses were less than measured by the traditional measure of IPO underpricing, issuing shareholders lost on both the shares they sold and those they retained.

Now let us assume that the private market price of Lotus equals the offering price,  $P_p = P_o$ , and that on a per share basis,  $P_m - P_o$ , represents the only change in share value to going public. Please observe, for the purposes of this example we are assuming that  $P_m > P_o = P_p$ , which is a very conservative assumption given our marketability arguments. Substituting  $P_p = P_o$  into (4) yields the following special case:

$$P_p = \frac{S_{new}}{S_{old}} P_m + \left(1 - \frac{S_{new}}{S_{old}}\right) P_o \quad (7)$$

Solving (7) with the appropriate values for Lotus results in the private market price:  $P_p = \$19.52$ . Calculating  $UP_D$  but with  $P_p = \$19.52$  suggests that Lotus shares sold on the offering lost 7.8% as a percentage of initial value. However, shares that were retained *gained* 28.1% as a result of the offering.

To put these differences further into perspective let us consider the wealth transfer from issuing shareholders to the buyers of the IPO. Based on the Barry model in (6), the wealth loss by issuing shareholders for the 500,000 shares they sold on the IPO is  $500,000 * \$8.52 = \$4,260,000$ . Our model had the shareholders losing  $500,000 * \$7 = \$3,500,000$  on the shares offered at the IPO. More importantly, the Barry model has issuers losing an additional  $11,000,000 * \$1.52 = \$16,720,000$  on their retained shares. However, using the model offered here, shareholders *gain*  $11,000,000 * \$5.48 = \$60,280,000$  on their retained shares. In total, the Barry model has issuing shareholders sacrificing \$21,980,000 in wealth, while our model has them gaining wealth of \$56,780,000 after *paying* underpricing costs of \$3,500,000. In other words, in our model shareholders *pay* a cost of \$3,500,000 in order to reap a wealth increase of \$56,780,000. This wealth increase occurs even though we have used a conservatively valued private market price. Viewed from this perspective, issuing shareholders do not seem to be as daft as is traditionally assumed.

As it stands, the overall net difference in shareholder wealth between the two models is \$78,760,000. Obviously, these wealth differences would be even greater if, as we have argued should be the case, the private market price were actually lower than the public offering price. Even so, these wealth differences are enormous and indicate that our change in perspective is not a minor one.

## VI. CONCLUSIONS

In this paper, we define marketability as the ability of an owner to sell, transfer, or trade an asset at will. We argue that an IPO is essentially a mechanism to increase share marketability and that this increase in share marketability increases share value. We present evidence and arguments, of various kinds and from various sources, which indicate that public market shares are more valuable than private market shares and that this value difference is due to the increased marketability that public market trading provides. If share marketability increases in an IPO and if share marketability and value are positively related, then the logical and unassailable conclusion is that private share value increases as the result of an IPO. From this perspective, an IPO is an instrument for creating wealth for issuers – some of which may be transferred to initial buyers via underpricing.

On the basis of the latter conclusions, we incorporate a marketability component into a model similar to Barry's. The result is a model of the initial public offering process that is consistent with wealth-maximizing behavior on the part of issuing shareholders. As an example of the differences between the Barry model and ours, we apply them both to Lotus Development's IPO. The Barry model has issuing shareholders losing just under \$21 million while our model, under the conservative assumption that the private market price equals the offering price, has them gaining just under \$57 million. The magnitude of the model differences indicates that models that ignore the positive wealth effects created by the increased marketability of public trading may be seriously misspecified. The point being that shareholders may willingly allow underpricing in order to reap the windfall increases in wealth created by the increased share marketability afforded by public trading. The rationality of the cost paid

for underpricing relative to the wealth gained should be the basis of fruitful, future research efforts.

#### NOTES

1. See, for example, IRS ruling 77-287, which provides valuation information regarding securities that cannot be resold because Federal Securities Laws restrict their resale.
2. See Blackwell and Pavlik (1995) for more detailed arguments relating to marketability and value.
3. See Loderer and Jacobs (1995) for a study of the Nestle case. See Foerster and Karolyi (1999) for a recent discussion of international segmentation. Adler and Dumas (1983) and Stultz (1995) discuss the importance of understanding the effect of segmentation on value.
4. Merton's model can easily be construed as marketability-based. To do so merely assume that a firm's investor base is composed of individuals who can buy the firm's shares rather than individuals who are aware of the shares.
5. The segmentation in the Mauer and Senbet model is between investors with access to shares in the offering and those with access after the shares begin trading in the secondary market. Since the segmentation between investors with access to shares in the private market and investors with access to the offering may be even larger than the segmentation between the offering and the public market, we are extending their arguments to cover both differences in access.
6. One simplifying, but important assumption, being made in the remainder of the paper is that all of the gains to going public can be attributed to the increase in share marketability. While the marketability increase might be the sole source of value gains across the 144 Letter stock/ unrestricted stock dimension or across the restricted country share/unrestricted share dimension, it is unlikely that it is the sole source of gains across the private/public market dimension. As discussed in Merton (1987), information is also released and disseminated in an IPO. This information effect undoubtedly has value implications. One goal here is to highlight the importance of marketability in the offering process, so we ignore other influences on value.
7. We leave the explicit modeling of  $M$  for future research, but it should be a function of increased potential investor base (a la Merton 1987 and Mauer and Senbet 1992) and reduced future transactions costs (a la Amihud and Mendelson 1989).
8. Prices securities sold for in private market transactions (e.g., sales to venture capital firms) can often be found in IPO prospectuses. See Blackwell and Pavlik (1999) for examples.
9. A simplifying assumption underlying (5) and made throughout the remainder of the paper is that the shares issuers retain on the offering have unrestricted marketability in the public market. In the United States, owners of such shares are usually restricted from selling them for some period after the offering, and some of these shares may be letter stock. (See Longstaff (1995) for a more complete discussion.) The result is (5) and the expressions that follow may overstate the

immediate gains on retained shares. However, the public market value can be used as the basis bank loans, and as time passes after the IPO more and more restrictions are lifted.

### REFERENCES

- Adler, M., and B. Dumas, 1983, "International Portfolio Choice and Corporation Finance: A Synthesis," *Journal of Finance* 38, 925-984.
- Amihud, Y. and H. Mendelson, 1986, "Asset Pricing and the Bid-Ask Spread," *Journal of Financial Economics* 17, 233-249.
- Amihud, Y., H. Mendelson, and J. Uno, 1999, "Number of Shareholders and Stock Prices: Evidence from Japan," *Journal of Finance* 54, 1169-1183.
- Barry, C.B. 1989, "Initial Public Offering Underpricing: The Issuer's View - A Comment," *Journal of Finance*, 44, 1099-1103.
- Beatty R.P. and J.R. Ritter, 1986, "Investment Banking, Reputation, and the Underpricing of Initial Public Offerings," *Journal of Financial Economics* 15, 213-232.
- Dawson, S.M. 1987, "Initial Public Offer Underpricing: The Issuer's View - A Note," *Journal of Finance* 42, 159-162.
- Foerster, S.R. and Karoli, A. 1999, "The Effects Of Market Segmentation And Investor Recognition On Asset Prices: Evidence From Foreign Stock Listings In The United States," *Journal of Finance* 54, 981-1013
- Henry, P.B. 2000, "Stock Market Liberalization, Economic Reform, and Emerging Market Equity Prices," *Journal of Finance* 55, 529-564.
- Hietala, P.T. 1989, "Asset Pricing in Partially Segmented Markets: Evidence from the Finnish Market," *Journal of Finance* 44, 3, 697-718.
- Kadlec, G.B. and J. J. McConnell, 1994, "The Effect of Market Segmentation and Marketability on Asset Prices: Evidence from Exchange Listings," *Journal of Finance* 49, 2, 611-633.
- Longstaff, F.A. 1995, "How Much Can Marketability Affect Security Values?," *Journal of Finance* 50, 5, 1767-1774.
- Loderer, C. and A. Jacobs, 1995, "The Nestle Crash," *Journal of Financial Economics* 37,3, 315-340.
- Mauer, D.C. and L.W. Senbet, 1992, "The Effect of The Secondary Market on the Pricing of Initial Public Offerings: Theory and Evidence," *Journal of Financial and Quantitative Analysis* 27, 55-79.
- Merton, R.C. 1987, "A Simple Model of Capital Market Equilibrium with Incomplete Information," *Journal of Finance* 42, 483-510.
- Blackwell, D.W., and Pavlik, R. M., 1999, "Marketability and Share Value," Unpublished working paper.
- Pratt, S.P., 1989, *Valuing a Business*, Dow Jones Irwin, Homewood, Illinois.
- Ritter, J.R. 1991, "The Long-Run Performance of Initial Public Offerings," *Journal of Finance* 46, 1, 3-48.
- Silber, W.L., 1991, "Discounts on Restricted Stock: The Impact of Illiquidity on Stock Prices," *Financial Analysts Journal* 47, 60-64.

Stulz, R., 1995, International Portfolio Choice and Asset Pricing: An Integrative Survey; in Robert Jarrow, Vojislav Maksimovic, and William Ziemba, eds.: *Finance, Handbooks in Operations Research and Management Science, Vol. 9* (Elsevier-North Holland, Amsterdam).