

Public and Private Capital Markets are Not Substitutes

By Robert T. Slee

Business appraisers spend a considerable amount of time and energy using public securities information to derive private business values. This is understandable since *Revenue Ruling 59-60* gives justification to considering the “market prices of...stocks actively traded...either on an exchange or over the counter” as one of eight factors to consider when valuing privately held businesses. Comparing public and private securities has created the need for elaborate economic bridges that enable appraisers to value private business interests vis-à-vis public data with ever more certainty. There is a problem with this methodology: it assumes that public and private capital markets are substitutes. This paper shows otherwise.

A number of factors separate the public and private markets, including:

1. Risk and return are unique to each market
2. Liquidity within each market is different
3. Motives of private owners are different from those of professional managers
4. Underlying capital market theories that explain the behavior of players in each market are different
5. Private companies are priced at a point in time while public companies are continuously priced
6. Public markets allow ready access to capital, while private capital is difficult to arrange
7. Public shareholders can diversify their holdings, whereas private shareholders can not diversify
8. Private markets are inefficient, whereas public markets are fairly efficient
9. Market mechanisms have differing effects on each market
10. Capital market lines (costs of capital) are substantially different for each market
11. The expected holding period for investors is different for each market

The differences between public and private markets will be examined at several levels. First, the principle of substitution is used to determine if the markets are indeed substitutes. Next, the appropriateness of employing one capital market theory to explain the behavior of all parties within the various markets is discussed. Third, the structure of the public and private capital markets is analyzed. Finally, investor return expectations for each market are described. It is the premise of this paper that capital markets are differentiated by nearly every meaningful measure, and that solutions to problems within each market are found within that market.

I. The Principle of Substitution

The principle of substitution is a foundational concept underlying all appraisals of economic value. According to the principle of substitution value is determined by the cost of acquiring an equally desirable substitute. In other words, no one would knowingly pay more for something than it would cost to obtain an equally desirable substitute. Guideline transactions are used to define the market for businesses that are equally desirable substitutes for the subject business. It is important to recognize that the principle of substitution does not call for "identical" businesses as substitutes for the subject company. Instead, it calls for investments whose desirability is equal to that of the subject business. From an investment viewpoint guideline transaction prices are relevant to the value of private businesses when they are similar with respect to the degree of risk, the liquidity of the investment, and the involvement of management.¹

Principle of Substitution Tenet 1: Risk

An investment in a private company is typically riskier than an investment in a public company. Even within public companies, stocks of smaller companies are riskier than larger company stocks. Because of this, small company stocks command a higher expected rate of return in the market. Several companies study the relationship between risk and return in the public markets. The leading company, Ibbotson Associates, quantifies this relationship by publishing an annual study called the *SBBI Yearbook*. Relative to size, the Ibbotson studies indicate a higher equity risk premium for smaller common public stocks.²

Exhibit 1 Equity Risk Premiums

Average Sales	Equity Risk Premium
\$33 billion	6.4%
\$753 million	9.0%
\$47 million	13.6%

Equity risk premiums vary according to company size, as measured by sales volume. This means investors in smaller public companies actually have received greater returns to compensate for additional. As the leading valuation expert Shannon Pratt further indicates, the total risk, or standard deviation of annual returns, also increases with decreasing size.³ This implies the market does not ignore unsystematic risk (diversifiable risk), and requires extra returns for accepting that risk. Unsystematic risk is a function of characteristics of the company's industry, the company itself, or the specific investment that is offered by the company. Examples of this diversifiable risk include management's ability to step up to a challenge, the debt level of the company, and any other factors that are company specific. This extra return required by the market is called the *size premium*.

The size premium, which is also studied by Ibbotson Associates, measures the amount of return in addition to the basic equity risk premium noted above. Ibbotson's small company category is called *Micro-cap equity size premia*. It is the measurement of returns in excess of those predicted for the portfolio of stocks represented by the smallest 20 percent of stocks on the NYSE, American Stock Exchange, and Nasdaq National Market, with current capitalization below \$192 million. The size premium for the years 1996-2000 ranged from 2.5% to 3.4%.⁴

Using the Ibbotson data, smaller public stocks are considered riskier than larger public stocks. Investors in small public stocks require a greater return to compensate them for this additional risk. The return difference is substantial. When considering the equity risk and size premium together, there is roughly a 10% return difference between large and small public companies.

If a risk difference exists between public companies of different sizes, it follows that expected returns are greater for smaller private companies as compared to smaller public companies. Part of this added risk is explained by unsystematic risk associated with private ownership. Since private owners cannot diversify their holdings nearly to the extent public shareholders can, an *extra* return, beyond the equity risk and size premiums, is needed to estimate an appropriate expected rate of return. This additional risk associated with private companies is sometimes referred to as *specific company risk*. Estimating specific company risk generally requires a judgment call by the appraiser.

The prevalent method for determining private discount rates, or private expected rates of return, starts with required return rates for public company, then adds layers of risk. Ultimately a judgment is necessary on the private company's additional specific risk, *as it relates to the public guideline company's expected rates of return*. Using the principal of substitution, it makes more sense to determine the *private* expected rates of return for similar investments.

Two Types of Risk

Equity Risk Premium - The risk associated with systematic risk, which is also called nondiversifiable risk. Investors are compensated for taking this equity risk by receiving a premium over the risk free rate (called the equity risk premium).

Size Premium - The risk associated with unsystematic risk, or diversifiable risk. This risk is company specific, and investors require an extra return for accepting it (called the size premium).

Principle of Substitution Tenet 2: Liquidity

The second tenet of the principle of substitution, in terms of the relevancy of using public guideline information to value private business interests, involves the liquidity of the investment. Private companies do not have a ready market for their shares and thus are highly illiquid investments. The Emory studies show that even companies in the process of going public suffer major discounts due to illiquidity.⁵ In the studies, Emory analyzed over 2,200 offerings to determine the relationship between (1) the price at which the stock was initially offered to the public and (2) the price at which the latest private transactions occurred up to five months prior to the initial public offering. Emory eliminated companies with operating losses and those with no transactions in the five months prior to the IPO. The mean price difference for qualifying transactions was 44%. Thus, companies that were moving towards becoming public suffered, on the average, a 44% loss of value due to illiquidity. Other studies verify the Emory results.⁶

Using liquidity of the investment as a comparison, public and private stocks are not substitutes for each other.

Principle of Substitution Tenet 3: Management Involvement

The final test as to whether public and private stocks are good substitutes is the degree to which management is involved. If management of a public and private company acts similarly and is driven by similar motives, then there is reason to believe the end result of their efforts would be similar. Clearly, there are differences in how public and private companies are managed. Exhibit 2 describes a number of differences in manager involvement.

Exhibit 2 **Differences in Manager Involvement**

Public	Private
Profit Maximization	Personal Wealth Creation
Not Driven by Taxes	Consumed with Limiting Taxes
Functionally Organized	Owner Wears Many Hats
Customer Contact from Below	Customer Contact from the Top
Personal Time vs. Business Time	Only 24 Hours in a Day

Public managers are driven to maximize profits with a side concern for decreasing corporate income taxes. Private owner-managers are driven to increase the cash available to increase their personal wealth with direct and specific objectives to limit all taxes. Public managers organize their companies functionally; whereas, private owner-managers tend to wear many functional hats themselves and organize their companies around customer needs. For instance, rather than have customers contact sales or marketing representatives directly as they do in public companies, many private companies have customers contact the owner-manager directly, who then involves the appropriate personnel. Finally, professional managers build a wall between personal and business time. With all of their wealth standing behind the business, owner-managers are on the job twenty-four hours per day, seven days a week. Therefore, there are substantial managerial differences between public and private managers.

The issue of using public stock information as a relevant source for valuing private stocks can be viewed by analogy. Most private companies have different foundations, both financially and organizationally, from those of most public companies. Perhaps a comparison can be found between two different industrial buildings. Assume both contain 100,000 sq. ft. on five acres of land. Both are zoned the same, with approximately the same internal layout and capabilities. The only difference is that one sits on a shaky foundation, and the other sits on bedrock. As long as their foundations are disregarded, they are equally desirable substitutes. But few would ignore such foundational consideration.

The foregoing discussion regarding the principle of substitution suggests that public guideline transaction prices are not relevant to the valuation of private business interests. All three areas, risk, liquidity and management involvement, point to major differences between public and private company stocks. Under this analysis, public stocks are *generally* not good substitutes or comparisons for private stocks.

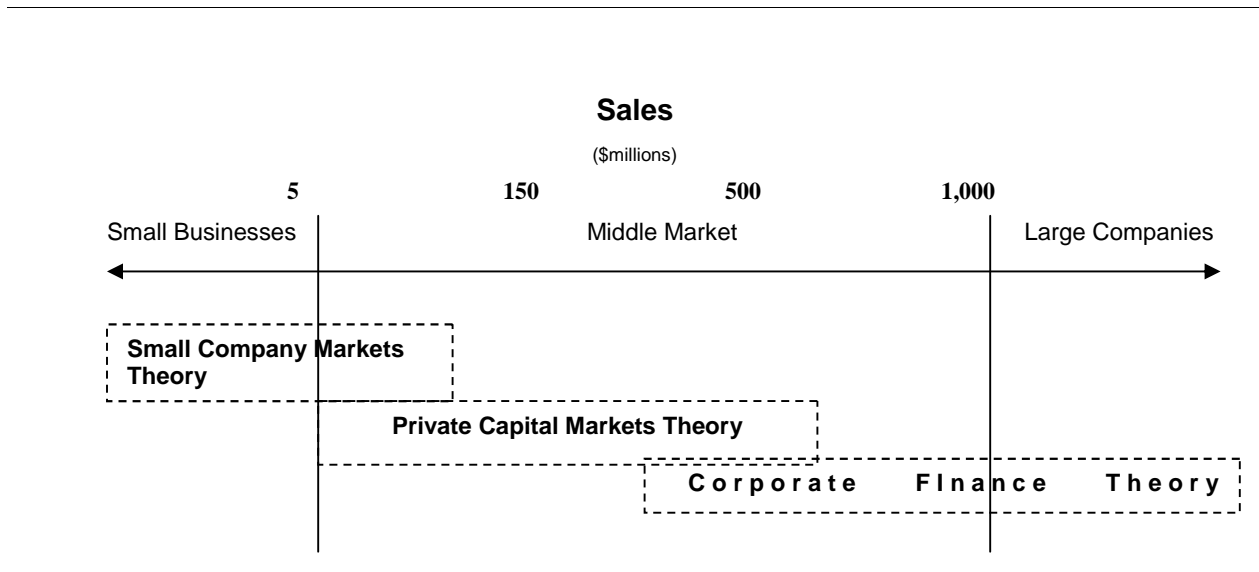
II. Capital Markets Theories

Until recently, private market players had only corporate finance theories to explain the behavior of the private capital markets. They were left to assume that corporate finance theories explain and predict actions in the private markets. A recent book demonstrates otherwise.⁷ Corporate finance theories explain and organize the public capital markets but have never been intended to explain nonpublic capital

markets. Private markets must be explained using theories tailored to experience in those markets. Employing powerful theories in the wrong context leads to frustration and a loss of utility. For example, assessing risk using a theoretical structure applicable to one market while expecting a return in another market causes a serious disconnect.

At least three capital markets theories are needed to explain the broader capital markets. Exhibit 3 shows the linkage between each market and theory.

Exhibit 3 Capital Markets and Theories



Small company markets theory does not yet exist in the literature. Elements of this emerging theory are extant, such as valuation standards for appraising small business interests, capital raising constructs such as the use of the Small Business Administration's programs, and various articles and writings on transferring small businesses. At some point in the near future, institutions within the small business market will sufficiently mature enabling a holistic theory to develop.

Private capital markets theory is the integrated capital market theory unique to private companies, especially those with annual sales of \$5 million to \$500 million. This theory describes the valuation, capitalization and transfer of private business interests. These three interrelated areas rely on each other in a triangular fashion. This interrelation not only provides strength to market architecture, but it also requires users of the body of knowledge to understand all three legs of the triangle. Just understanding valuation or capital structure or transfer will not get the job done in the marketplace. Recognizing the triangle acknowledges what the private companies need most - holistic solutions. Typically a private business owner is faced with a financial problem that can only be solved by drawing information from throughout the body of capital knowledge.

Finally, corporate finance theory was developed in the 1960's to explain the behavior of large companies in the public capital markets. These theories include: capital asset pricing theory, efficient market theory, option pricing theory, agency theory, net present value, portfolio theory, and others.

Theories are useful only if they are predictive. Corporate finance theory does not predict behavior in the private capital markets; likewise, private capital markets theory is not predictive of the public markets. The starkness of this contrast is shown by the assumptions behind corporate finance theory and private capital markets theory.

Exhibit 4 Assumptions behind Corporate Finance Theory and Private Capital Markets Theory

Corporate Finance Theory	Private Capital Markets Theory
Use of a C corporation	Can be any type entity (S, LLC, etc)
Value is established by a market	Value is established at a point in time
Ready access to public capital markets	No access to public capital markets
Owners have limited liability	Owners have unlimited liability
Owners are well diversified	Owners have one primary asset
Professional management	Owner management
Company has infinite life	Typical company life of one generation
Liquid securities efficiently traded	Illiquid securities inefficiently traded
Profit maximization as goal	Personal wealth creation as goal

Many underlying assumptions between corporate and private markets theory are different and at odds with each other. Several characteristics are particularly noteworthy:

- A market establishes value for public companies, whereas private companies must rely on a point in time appraisal or a transaction to determine value. This is a startling contrast. In one case, it is possible to use the Internet to obtain *real time* pricing of a security. In the other case, much work is required to ascertain the value of a security at a particular point in time, probably in the past. If there were no other differences between public and private markets this one issue would suffice to separate them.
- Public companies have ready access to capital but private companies must create capital solutions one deal at a time, with little certainty of success. Think of it as if public companies have access to a capital cupboard. On shelves within the cupboard lay all of the available capital alternatives. The riskiness of the particular financing determines which shelf the public company can access. Private companies, on the other hand, have no access to a capital cupboard. Instead, they must create a shelf each time they need to access capital.
- Shareholders in public companies are able to diversify, because of the high liquidity available in the public capital markets. They do not have all their eggs in one basket. Private owners have nearly all of their wealth tied up in one asset, the stock of their business. Increased risk is the main ramification of this lack of diversification. Both public and private capital markets treat risk similarly: the greater the risk of owning an asset, the greater the return required to compensate for the added risk.

Differing assumptions underlying corporate finance ultimately limit the utility of these theories to the private markets.

Application of Corporate Finance Theory to the Private Capital Markets

Exhibit 5 compares the application of a number of corporate finance theories to the private capital markets. Since both theories emanate from the same broader economic theories, they share many similarities.⁸ For instance, private capital providers use the tenets of portfolio theory to manage their portfolios and diversify risk. Conversely, portfolio theory does not uniformly explain behavior in the private capital markets. For example, private owners can not use portfolio theory to diversify their ownership risk because they have nearly all of their wealth tied to one asset.

Exhibit 5 **Application of Corporate Finance Theory to the Private Capital Markets**

Corporate Finance Theory	Application to the Private Capital Markets
Net Present Value	Theoretically correct for all firms. Used primarily by public companies. Less than 10% of private companies use NPV to make investment decisions.
Capital Asset Pricing Theory	Measuring risk and return is a core concept for all markets. The use of beta and other assumptions minimize the utility of the capital asset pricing model for private companies.
Efficient Market Theory	Applies to both private and public markets. Private capital markets are much less efficient than public markets.
Portfolio Theory	Used to manage a collection of risky assets. Requires diversification of assets to minimize portfolio risk, which is impossible for a private owner-manager. Portfolio theory is widely used by private capital providers to manage risk and return.
Option Pricing Theory	Options theory is primarily used for corporate finance. Since private companies do not trade on an exchange, volatility, the degree to which stock price changes exceed their historical average, cannot be measured to support the theory. Used by private firms to assess business options, including stock options, lease options and buy/sell provisions. A version of options theory helps explain the valuation of transfer alternatives faced by private owners.
Agency Theory	Agency theory explains how to best organize relationships in which one party determines the work, which another party undertakes. Strong management adds to the value of a private firm. Issues exist even for owner-managed private firms. Authorities in the private capital markets can be viewed as agents that provide constraints and rules to the parties.

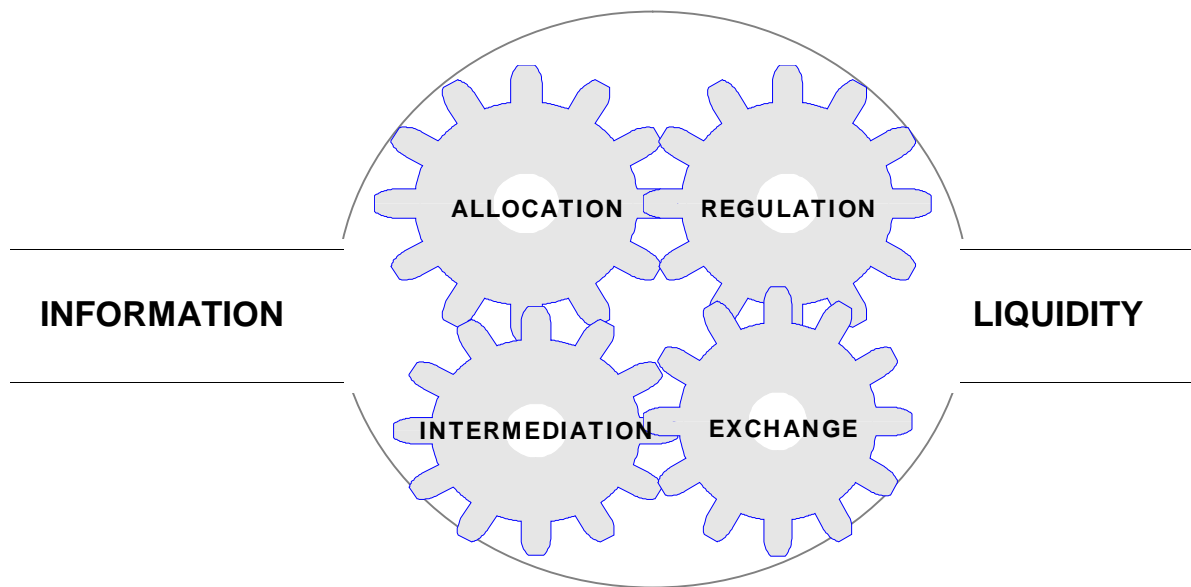
Corporate finance theory was developed in the 1960's to explain large companies in the public capital markets. Economists who originally developed these tools never intended for them to be used to predict other markets' behavior. Certain corporate finance theories, such as net present value, the capital asset pricing theory and efficient market theory, either are not used by owners of private companies or do not apply to the private markets. Applying these theories in the private market is like utilizing the wrong tools in a tool box. Corporate finance tools were specifically designed to "work on" public market mechanisms.

III. Structure of Capital Markets

All capital markets are comprised of commercial activity where motivated parties undertake an exchange because each expects to gain from the exchange. Markets contain mechanisms, or organized sets of activities, which enable participants to exchange interest in, or invest in, companies. In a free market participants have the ability to meet and exchange something for an agreed upon price.

Exhibit 6 depicts several market mechanisms as gears in a market that is greased by information and liquidity.

Exhibit 6 **Mechanisms that Structure Markets**



The following describes the structure of capital markets, with particular attention given to the comparison of public and private markets.

Information

The role of information is central in both public and private capital markets. Availability, accuracy and access to information lubricate all market mechanisms. Information availability in public markets renders them more efficient. Therefore, in theory, they are less likely to produce deals where one party takes advantage of another because of asymmetrical information. It takes government regulation and enforcement to insure that public information is accurate and available to all.

Availability, accuracy and access to information are significantly different in the private markets. Financial statements are the basic building blocks of information. Most private companies lack audited financial statements and are less likely to prepare their financial statements in compliance with Generally

Accepted Accounting Principles. Even that lesser quality information is not made publicly available. This absence of real time, readily available information is a major difference between the markets.

Liquidity

Liquidity is the central value proposition of any market. Liquidity refers to the amount of capital in a market and the flow of that capital internally, as well as into and out of the market. Liquidity is capital in motion and is a necessary lubricant for markets to work because it allows movement from one asset class to another.

Markets are described as more or less liquid. For example, real estate and privately held businesses are typically illiquid investments, while investments in publicly held businesses are considered liquid. The public markets largely transfer fractional interests in a company. Since there is no market to sell private minority interests, most private transfers involve enterprise sales. An enterprise transfer of a private company can easily take a full year, whereas public enterprise sales normally require half that time. Investors in private companies factor a liquidity premium in their return expectations recognizing that these investments are not easily exited.

Market structure is comprised of several mechanisms, among them are:

- Allocation mechanism
- Regulatory mechanisms
- Intermediation mechanisms
- Exchange mechanisms

Market mechanisms provide a structured way to understand complex markets. These mechanisms are the activities or gears that enable a market to operate. Synchronization is possible because each mechanism contains elements of other mechanisms, all operate in a similar information environment and all mechanisms tend toward equilibrium.

Market mechanisms operate in an environment lubricated with information and liquidity and tend toward equilibrium; such is the case of allocating scarce resources.

Allocation

Allocation is the market mechanism of rationing resources. Because resources are finite, markets allocate money, resources, effort, authority, and cooperation as well as tangible and intangible assets. Allocation decisions may be arrived at using a variety of criteria. For example, a first-come, first-serve process benefits the fleet of foot, while a political process allocates benefits based on the ability to manipulate that process.

Resources allocation in the public markets is relatively efficient as demonstrated by both pricing and access to capital by public companies and investors. This is a distinct contrast with the relative inefficiency found in the private capital markets.⁹

Regulation

Regulation refers to attempts to bring the market under the control of an authority. Regulation is provided by a number of sources, including government and competition.

Government regulation is a pervasive type of regulation, usually expressed as restrictions on behavior. Government regulation provides adjudication of disputes, as well as rules for eligibility and participation. Governments may attempt to control all elements of the market but in a free market system governmental control itself operates under restrictions thereby introducing competing authorities. Public companies are exposed to more extensive governmental regulation than are private companies.

Markets are also regulated through a severe discipline imposed by competition. Firms are not free to raise prices without facing economic consequences. Nor can a company pay its employees whatever it wants. Competition forces efficiency, and ultimately causes supply and demand to balance. Competition regulates the market.

Intermediation

Specialization creates a need for intermediaries to serve as agents of exchange. Paradoxically, specialization leads to increased efficiency based on developing expertise in disparate areas; while simultaneously leading to inefficiency as these areas become increasingly isolated without a controlling authority. Specialization creates the need for information and trading expertise. Intermediaries act as *infomediaries* where information opacity exists.

Intermediaries add efficiency to a market in several ways. First, they provide a communication system between parties. Second, they work to establish prices that often serve as the starting point in exchange discussions. Finally, they might act as market makers by actually participating in the market as sellers or buyers in order to create a liquid market.

The public transfer market functions with agents *and* market makers. Investment bankers are agents who advise on public enterprise transfers. Market makers are firms that stand ready to buy and sell a particular stock on a regular and continuous basis at a publicly quoted price. Public agents and market makers provide liquidity and efficiency to the public market. The private transfer market has agents, such as business brokers, M&A intermediaries and private investment bankers. But, strictly speaking there are no private market makers who perform all the functions of market makers in the public market.

Exchange

Market participants in a supply and demand economy are free to exchange for an agreed price. Supply and demand in a market are affected by a host of factors. Shifts in supply or demand cause price increases and decreases. Changes in customer preferences or the cost of money may alter demand. Equilibrium is reached at the point where the greatest numbers of consumers and producers are satisfied.

Exchange, taken as a noun, is an institutionalizing mechanism. Institutionalized exchanges take many forms, including business-to-business, business to consumer, intermediated exchanges and direct exchanges. The nature of the exchange mechanism is the most obvious difference between the public and private markets. There is no single place or entity where an owner or investor might exchange an interest in a private company.

Comparison of the Markets

These market mechanisms are useful in explaining the structure of the private capital markets. The private capital markets are a complex interacting network of discrete exchanges rather than a unified structure. They are quite different from the public markets. For example, institutionalization in the public markets is developed beyond the private markets. In the public market the players are licensed, highly regulated, larger in size and tend to offer a wide range of financial services. In the private markets there are a host of smaller transfer players who provide discrete services. Their services are largely unregulated; however, the SEC and various state authorities provide some regulation.

Exhibit 7 **Comparison of the Capital Markets**

Market Mechanism	The Public Markets Enjoy:	The Private Markets Exhibit:
Information	Symmetrical information Transparent information on the subject	Asymmetrical information Opaque information on the subject
Liquidity	Transfers of mainly minority interests Instant trading	Transfers of mainly enterprise interests Long-term planned exits
Allocation	Efficient allocation	Fairly inefficient allocation
Regulation	A regulated market	A mainly non-regulated market
Intermediation	An industry of agents and market makers	A segmented industry of agents
Exchange	Continuous pricing	Point in time pricing

By describing the public markets in terms that apply to all markets they can be compared and contrasted with the private capital markets. It is easy to conclude that the private markets are less mature than the public markets, or that they are emerging markets. And there is certainly a measure of truth in those observations. But there is more to it than that. The private markets are driven by a wide variety of unique motives and the markets have developed mechanisms enabling those unique objectives to be accomplished. In fact, one could argue that the private markets are more sophisticated in that they provide a vast array valuation approaches, capitalization points and transfer mechanisms.

The private capital markets are understandable in terms that apply to all markets. They are a collection of mechanisms, located a free market system, and as such there is no authority controlling the overall structure and function of the market. Rather there are multiple authorities, with various levels of influence and control, operating in certain areas of the market.

The structure of the public and private markets is different. Market mechanisms adapt to meet the needs of the participants in each market. To ignore these structural differences, or to attempt to equalize the markets with a mathematical plug figure, is a mistake in judgment.

IV. Investor Return Expectations

Ultimately, the differences between the public and private markets manifest in the pricing of the securities. Since there is no market for private minority interests, any comparison to the public market must be made on an enterprise basis.

There is a substantial difference between the selling process used for enterprise sales of public and lower end, middle market private businesses. Since there is no active market for a private company's shares, pricing is set by those buyers aware of the situation. This lack of marketability depresses a private company's stock in two ways. First, investment bankers typically employ a private auction selling process, which limits the number of buyers, and, due to confidentiality issues, probably prohibits competitive bids. Second, the lack of a ready market allows buyers to create a market price for the private shares. Most buyers reduce their risk by setting a low price for the stock.

Public companies draw more attention than private firms when they are for sale. Controlling interests in public companies transfer at substantial premiums over their normal trading ranges because of public auction pricing. Studies by Mergerstat Review, a publication that measures control premiums, show that the average control premium paid in the past ten years was in the 35-45 percent range.¹⁰ The public auction process invites the universe of potential buyers, including competitors and hostile takeovers players into the auction.

Exhibit 8 compares public takeover Price/Earnings ratios to private EBIT multiples for a seven-year period.¹¹ Many people believe public securities pricing determines, or influences, private stock prices. Every year thousands of business appraisers reach into various databases and apply public P/E ratios to derive private values. Also, many private owners read the *Wall Street Journal* and extrapolate values for their firms from public pricing multiples. These actions presume the two capital markets are related. But is there a correlation between public and private acquisition multiples?

Exhibit 8 **Public vs. Private Acquisition Multiples**

Year	Median Public Price/Earnings	Median EBIT Multiple ¹²
1996	21.7	6.0
1997	25.0	5.3
1998	24.0	5.5
1999	21.7	7.4
2000	18.0	6.7
2001	16.7	5.5
2002	19.7	4.8
Correlation Coefficient		0

Judging by the table, no correlation is apparent.

To determine a statistical relation, test the data points. A correlation coefficient of "1" indicates a perfect relationship exists, whereas a coefficient of "0" means the variables are unrelated. The correlation coefficient for the public and private acquisition multiples is approximately "0". In fact, no correlation exists between the public data and other transaction categories (\$3-10MM, \$10-20MM or \$50-100MM).

This lack of correlation is further indication regarding the danger of using public securities data as a surrogate or guide to private stock valuation. If the public transfer market does not drive private pricing, what does? A primary driver of private stock prices is private investor return expectations.

Private Investor Return Expectations

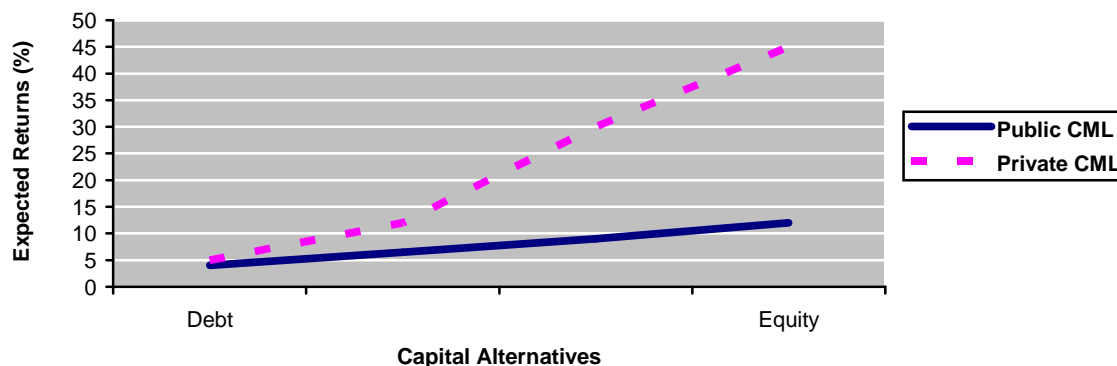
The relationship between private investor return expectations and valuation is straightforward. The greater the perceived risk, the greater the return expected by investors to compensate for this risk. The discount rate is the expected rate of return required to attract capital to an investment, taking into account the rate of return available from other investments of comparable risk. Another way of looking at this risk/return relationship is through using a discount rate as determined by the market for capital.

Calculating the reciprocal of the selling multiples is a shorthand method for determining the discount rate. The private acquisition multiples in the table range between a multiple of 4.8 and 7.4, a narrow multiple range of only 2.6 times earnings. Expressed as a reciprocal, this corresponds to roughly a 14% to 21% discount rate or private investor return expectation (14-21% equals the reciprocal of 7.4 and 4.8, respectively). This return expectation can be tested. Assume a buyer employs a standard capital structure in an acquisition. Thus, 30% of the capital is equity, which carries a 30% return expectation, while 70% of the capital is in debt, which costs about 9%. The implied discount rate in this capital structure is about 15%, within the total return range cited above. Thus, while further study is needed in this area, at least there is a correlation between private investor return expectations and pricing in the table.

Capital Market Lines

Capital markets are segmented by a number of factors, including how participants in the segment view risk and return. Differentiating segments via risk and return is fundamentally important because measuring and managing risk and return is the basis for asset valuation. This means that participants in each segment would value the same asset differently, because they use the concepts of risk and return parochially. It also means that each segment's capital market line is unique.

A capital market line (CML) is a graphic representation of the expected returns to the capital providers of all institutional capital offerings in a market. Exhibit 9 shows the capital market lines for public and private capital markets.



The public company capital markets are fairly efficient. Since security pricing and risk/return are more nearly in alignment, access to capital is predictable. By either of these measures the public market are relatively efficient. Typically pricing differences between public capital alternatives are measured in basis points (1/100 of a percent) rather than percentage points.

The capital asset pricing model determines the Public CML. As expected, the riskier the capital type, the higher the return expectation. For example, public equity holders require returns of 12% or so, but debt holders require less than a 5% return. The Line is viewed as the expected returns on multiple portfolios of investments, as opposed to returns on single securities.

The Private CML describes rates of return required by private investors. This line is empirically based on observations in the market place. There is no widely accepted predictive private capital model, such as the capital asset pricing model, used to determine the risk/return equilibrium of private portfolios of securities. The Private CML is represented by a dashed line to reflect less efficiency in market pricing than the Public market. Expected return differences for capital types are often expressed by percentage point differences, as opposed to basis point differences in the Public CML.

There are several noteworthy things about this chart. First, the Private capital market line is substantially steeper than the Public line. Investors perceive substantially more risk in the private markets and require commensurate returns. Second, if the two markets enjoyed the same level of efficiency, the lines would run parallel to each other separated only by liquidity differences. Finally, capital access is less predictable in the private markets. There is far less institutional support for creating a capital structure in the private markets.

What Happens When You Substitute Market Theories and Ideas?

The temptation to use readily available public information to value private companies is strong. It should be noted that within the private capital markets, only academics and business appraisers use the public guideline approach. Other parties in the private capital markets - business owners, lenders, investors, estate planners, etc. – rely on valuation methods that are specifically useful to making decisions in their markets.

Why don't parties in the private capital markets employ public information in their decision-making process? Because these parties have real money in the markets; valuation is not notional or make-believe to them. Making proper financing and investment decisions requires using theories and methods that are appropriate to the subject's market.

What are the ramifications to those who borrow theories and ideas from another market? Exhibit 10 describes a number of ramifications of using public information or theories to solve private finance problems.

Exhibit 10 **Ramifications of Using Public Information to Solve Private Market Problems**

Public Market Given	Ramification in the Private Markets
Public market stocks trade as minority interests	There is no market for private minority stock interests. Private investors must have control to determine an exit.
Public market offers instantaneous trading of minority interests	Holding period for private stocks is 5-7 years, on an enterprise basis. Private investors must take a very long view toward the investment.
Public managers can finance projects at the company's marginal cost of capital	Most private companies can not access needed capital at any cost. This severely limits a private manager's ability to plan the growth of the business.
Public market offers instant pricing of securities. Thus, the perspectives of all investors is reflected in a market price	Private stocks must be valued at a point in time. This causes a private company to have dozens of correct values at any time, because "value to whom" must be answered for each appraisal purpose.
Public risk is ascertainable via predictive models such as the CAPM	No predictive models currently exist to accurately derive the risk of private ownership. Risk, therefore, is empirically observed via acquisition multiples and expected returns of private capital providers. Private cost of equity is often an unknown.

Judging by the ramifications described in Exhibit 10, it is little wonder that private capital markets players do not heed the advice of those who propose the use of public information to solve

private problems. Market players, especially owner-managers, know that what works in the public markets does not necessarily work in the private markets.

But are ‘economic bridges,’ such as lack of marketability discounts or control premiums, helpful in converting public data to private usage? In other words, can public information be contorted in ways that are then useful to private decision-makers? The answer is no. This paper shows that the public markets have specific theories that explain public investor behavior; that these public investors have unique risk and return expectations; that the structure of the public markets are unique; and that access to, and cost of, capital is unique to public markets. It is both surprising and alarming that appraisers are choosing to ignore all of this substantiation and instead treat the public and private markets as substitutes. Or, equally as bad but more often the case, appraisers use quick and easy mathematical adjustments to *equalize* the markets.

Conclusion

A number of factors indicate that using public data to derive private values is inappropriate. A review of the principle of substitution suggests that public and private markets are not substitutes. Next, the behavior of market players is sufficiently different from market to market. To accurately predict market behavior, capital market theories must be tailored to a specific market. Further, the structure of each market is also unique. Market mechanisms, which provide structure to a market, move differently in public and private markets. Finally, investors within a market have specific return expectations, which are not commensurate with other markets.

The foregoing leaves us with one conclusion: It is a mistake to borrow theories, structure, and expected returns from one market to make financing and investment decisions in another market.

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Endnotes

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12. Taken from the annual International Network of M&A Partners (IMAP) annual surveys, "\$20MM-50MM" category, www.imap.com