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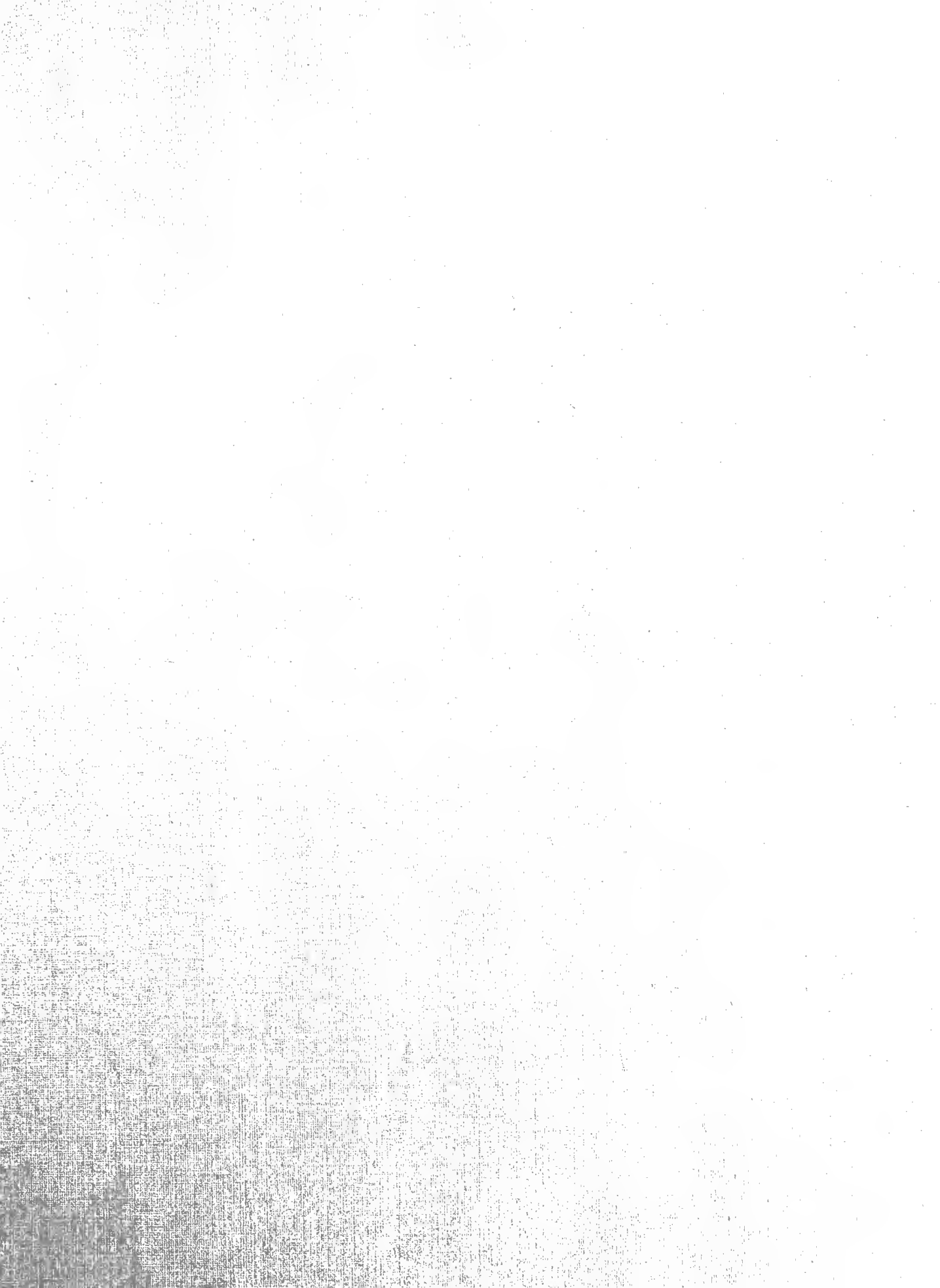


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PAPER NO. 794

An Analysis of the Effects of a Multi-Tiered
Stock Market

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College of Commerce and Business Administration

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An Analysis of the Effects of a Multi-Tiered Stock Market

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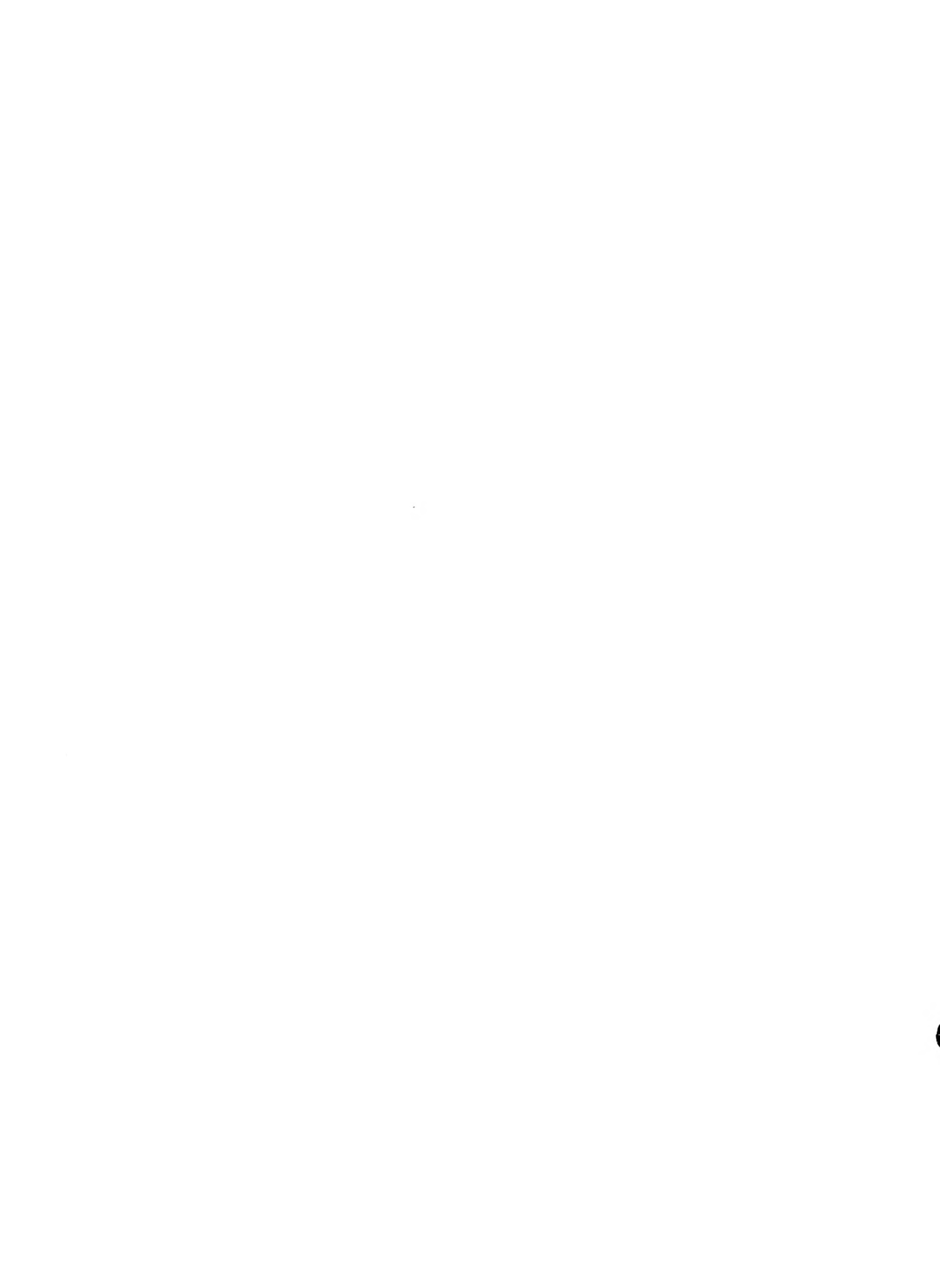
Abstract

While there is general agreement about the direction of a tiered stock market, little is known about the effects of it on the companies and stocks involved. This paper contains an analysis of the companies and the common stock in one of those tiers based upon market value. The analysis considers trading activity, stock price volatility, dividend payout, and financing characteristics (debt/equity ratios). The results clearly document some significant changes during the fifteen year period 1964-1978. Specifically, it appears that the lower tier firms have experienced a decline in relative market liquidity and dividend payout, while experiencing an increase in stock price volatility and financial leverage.

AN ANALYSIS OF THE EFFECTS OF A MULTI-TIERED STOCK MARKET

INTRODUCTION

A great deal has been written about the existence of a multi-tiered stock market, while little is known about the effects of such a market. It is generally acknowledged that a tiered market was formed in the early 1970's as a result of the growth in relative trading by major financial institutions (Armour [3], Blume [8], Elia [16,17,18,19,20,21,22], Freund [25], Farrar [23], Klemkosky [29,30], Loomis [32], Robbins [47], Rosenberg [48], Seligman [52], Smidt [55], Soldofsky [56], West and Tinic [67], and Schultz [50]). More recent discussions have considered the current nature of the tiered market (Welles [65,66], Carson-Parker [11], Ang [1], Marcial [36,37,38], Lurie [34], Janeway [27], Buhl [10], Loomis [33]). While changes may have occurred, we believe a tiered market exists and will continue to influence trading and relative pricing (Elia [17,18,19], Marcial [37,38], Reilly [45]). Because a multi-tiered stock market will probably continue, it becomes important to determine the effects of the tiered market on the securities and firms involved. Specifically, this paper examines common stocks in one of three market tiers (based on various measures of size), in terms of trading activity, price volatility, and financing characteristics during the 15 year period 1964-1978. The total period is divided into three subperiods representing periods of increasing trading activity by institutional investors. Specifically the first period is generally prior to the institutional impact, the second is a transitional period, and the recent period is when institutions have become the dominant trading group.



The initial section contains a discussion of what constitutes a multi-tiered market and the general effects expected. Section two considers the data employed and discusses the alternative tests. The results are presented and discussed in section three. The concluding section summarizes the results and discusses the implications for financial analysts and financial managers.

A TIERED MARKET

The multi-tiered stock market has developed because of the increase in equity trading by large financial institutions such as mutual funds, bank trust departments, pension funds and insurance companies. Institutional trading began to grow around 1965 and has continued to grow to the present. The period 1969-1973, witnessed an acceleration in the growth rate of institutional trading (See Klemkosky [30], Klemkosky and Scott [29], Reilly [44,45], Smidt [55], and Soldofsky [56]).

The tiered market developed because of the growth in institutional trading and the unique characteristics and needs of large institutional investors with multi billion dollar portfolios. While the management of large portfolios is desirable because of the substantial economies of scale in money management, it is important to minimize the number of issues in a portfolio consistent with diversification requirements to minimize research and administrative costs. Large portfolios coupled with few issues means that each issue owned must represent a large dollar holding.

Institutions also desire liquidity for their holdings--i.e., the ability to quickly buy or sell a sizeable block of stock without a substantial price change. A major influence on liquidity is the

institution's position relative to the number of shares outstanding. When a portfolio only contains a small percentage of the outstanding issue it is possible to buy or sell additional shares without disrupting the price. Consequently, because institutions need large dollar amounts of each investment in their portfolio and also want to hold a small percent of the outstanding shares, the total market value of the shares of the firms in which institutions invest must be substantial. As a result, institutions typically only consider the shares of companies with large market values. An article by Reilly [45] contains an example of required size and suggested a breakdown of the approximate number of companies in each of three tiers.

The top tier contained only companies large enough to be considered by all institutions (i.e., an approximate market value of equity of about \$400 million). The second tier included firms large enough to be considered by medium-sized institutions (i.e., an estimated size of at least \$200 million). All remaining firms, which would include the majority of firms, would constitute the bottom tier and they would generally not be of interest to institutions because of the size requirements postulated above.

EFFECTS OF A TIERED MARKET

There are two factors regarding a tiered market. First, there typically are differences between large and small firms aside from the tiered market. Specifically, prior to the tiered market, one would expect small firms to have less market liquidity and greater stock price volatility than large firms. Our results should confirm these relationships. More important, we believe that there have been

differential changes in several important variables for large and small firms because of the development of a tiered market.

Market Liquidity

External market liquidity is the ability to buy or sell an asset very quickly with little price change assuming no new information. The stock of large firms should have greater market liquidity because typically there are more shares outstanding, more stockholders, and more trading in the shares.¹ Therefore, we would expect an initial difference in market liquidity for the firms in the top tier compared with the lower tier firms.

Because of the tiered market, we would hypothesize an increase in the differences in market liquidity between the firms in the top tier and the firms in the other tiers. The increase in relative trading by large financial institutions and their preference for the stock of large firms should cause an increase in the market liquidity for the large firms' and no change or possibly a decline in the liquidity of stocks in the other tiers. Therefore, whatever the original differences in liquidity, we expect an increase in this difference in market liquidity in the recent period compared with the early period.

Stock Price Volatility

One would expect an initial difference in the level of a stock price volatility for large and small firms because larger firms have less sales

¹Several studies that analyzed factors that influence the market spread of stocks (bid-ask spread) indicated a high correlation between number of shares outstanding, the number of stockholders, and shares traded. In this regard, see West and Tinic [68].

and earnings volatility due to greater product diversification. Hence, they have less stock price volatility. In recent years, because smaller firms have probably become less liquid, this would increase their stock price volatility. Therefore, beyond the initial difference in stock price volatility, we hypothesize an increase in the differences in stock price volatility because of the larger difference in market liquidity.

Earnings Multiple

In an earlier version of the paper we noted that one might expect a relative decline in price-earnings ratios for the smaller firms because of the increase in risk. We also noted that the higher risk could be offset by higher growth expectations for the smaller firms. The results basically confirmed the offset argument—there was practically no difference in the average p/e at the beginning or at the end for the alternative samples. Therefore, due to space limitations these results are not reported but are available from the authors.

Dividend Policy

Firms generally determine their capital structure based upon their preference for financial risk which is influenced by the firms business risk--i.e., a firm with high business risk will generally have relatively less financial risk. Therefore, because small firms typically have higher business risk, one might expect that they would have less financial risk. Recently, because of the decline in liquidity for the stock of small firms, it would be difficult for these firms to sell new issues in the primary market. This would cause an increase in internal equity financing by smaller firms and a higher level of

earnings retention. Because smaller firms have relatively more investment opportunities than larger firms and generally fewer financing alternatives we would expect them to have a higher level of retention initially. Recently, since the tiered market has meant even fewer available financing alternatives for small firms, we expect a larger difference in internal financing--i.e., we hypothesize an increase in the difference between the retention rates.

Capital Structure

Finally we anticipate a change in the relative debt-equity mix. Overall, there has been an increase in the relative proportion of debt financing by U.S. corporations during the past two decades. In addition, because lower tier firms find it difficult to sell new equity in the primary market, they may be forced to the debt market. Therefore, we would expect a larger increase in the debt-equity ratio for small firms than for larger firms.

TESTS OF EFFECTS

Changes in Market Liquidity

Although the concept of market liquidity is fairly well developed, there are few measures of liquidity available. An alternative is to examine variables that should influence a measure of liquidity. As noted, the studies that have examined market makers spreads (i.e., the bid-ask spread) have indicated that one of the most important variables influencing this measure of liquidity is trading volume. Therefore, we examine the absolute and relative share trading volume

for the alternative samples during the three periods. We also analyzed relative trading as measured by the trading turnover for the stocks involved (i.e., the number of shares traded divided by the number of shares outstanding).

Change in Stock Price Volatility

Three measures of stock price volatility are employed. The first is the high-low spread during a month as a percent of the average of the high and low. The second measure is the average standard deviation of monthly price changes. The third measure is the average beta coefficient.

Changes in Dividend Payout

The average payout for each of the groups during each of the three periods was analyzed to determine the differences during each period and any changes over time.

Changes in Capital Structure

Finally, we computed the average debt/equity ratio for each year and examined the initial difference in the capital structure and determined whether the original relationship changed over time.

Data Set

Fifty stocks were chosen at random for each of the three tiers. Total market value of outstanding shares was the principle size variable used for placing a stock in a specific tier as suggested by

Reilly [45]. The level of market value as of 1975 determined the specific tier. Using 1975 allowed the sample to be formulated subsequent to the dominance of the institutional trading in the market while avoiding potential biases of either the beginning or end of the study period. While all 50 stocks were always available for the top tier, some variability occurred within the samples for Tier 2 and 3 due to data availability.

Stock data was collected from the ISL books and the University of Chicago CRSP tapes. Balance sheet and income statement data came from the Standard and Poor's Compustat tapes.

PRESENTATION OF RESULTS

Market Value

As indicated, the stocks were divided into tiers on the basis of market value as of 1975. Table 1 contains the average market value for the samples for each year and a relative value compared to the average market value per issue for all common stocks on the NYSE. The purpose of this analysis is to indicate that the sample selection process generated firms that are significantly different in size and consistent with the specification set forth in Reilly [45].

Clearly, the sample companies differ substantially in size. A simple pairwise difference test for the 15 years indicated that the firms in tier 1 were significantly larger (at the .01 level) than the firms in tier 2 (F ratio of 311.81) or tier 3 (F ratio of 325.59). Alternatively, the firms in tier 2 were not significantly larger than the firms in tier 3 although the average size was about three times larger.

The companies were also consistent with the Reilly [45] specification since the average top tier firm ranged over time from about \$3 billion to \$5 billion, the second tier ranged from about \$200 million to \$400 million, while the bottom tier ranged from about \$45 million to \$115 million.

In the analysis that follows we will examine the differences between tiers and changes over time using univariate analysis of variance to answer three questions:

1. Is there a significant difference in the levels of the variables between tiers--e.g., is there a significant difference in the payout ratio for firms in tier 1 versus firms in tier 3? We refer to this as the tier test.
2. Is there a significant change in the variable over time within a tier--e.g., is there a significant change in the debt-equity ratio over time in tier 1? We refer to this as the time test.
3. Is there a significant difference in the change in the variable over time for two alternative tiers--e.g., was the change in systematic risk (beta) significantly different for tier 1 versus tier 2? We refer to this as the time-tier test.

Market Liquidity

We expected that initially the top tier stocks would be more liquid and that during the test period, the difference in liquidity would increase.

TABLE 1

AVERAGE MARKET VALUE OF OUTSTANDING
COMMON STOCKS FOR COMPANIES IN ALTERNATIVE TIERS
AND RELATIVE TO THE AVERAGE STOCK ON THE NYSE

YEAR	Tier 1		Tier 2		Tier 3		Ave. NYSE (\$000)
	(\$000)	Relative	(\$000)	Relative	(\$000)	Relative	
1964	3,534,698	11.97	220,050	.74	45,588	.15	295,344
1965	3,884,733	11.76	263,022	.80	55,959	.17	330,351
1966	3,276,936	11.31	232,964	.80	50,641	.18	289,814
1967	4,197,958	11.78	299,760	.84	83,720	.24	356,363
1968	4,409,454	11.25	357,981	.91	99,362	.25	391,815
1969	3,901,798	11.09	285,822	.81	79,578	.23	351,846
1970	4,009,023	11.59	276,397	.80	69,929	.20	345,859
1971	4,475,278	11.63	311,312	.81	88,245	.23	384,965
1972	5,318,664	12.22	335,231	.77	99,478	.23	435,117
1973	4,385,074	12.52	259,920	.74	72,535	.21	350,346
1974	3,066,767	12.48	183,646	.75	48,757	.20	245,700
1975	4,171,896	12.86	294,543	.91	74,729	.23	324,543
1976	5,154,717	14.09	389,585	1.06	98,223	.27	365,934
1977	4,503,370	12.01	361,555	.96	104,296	.28	374,994
1978	4,585,795	10.46	385,564	.88	115,145	.26	438,233
1964-68	3,860,756	11.60	274,755	.83	67,054	.20	332,737
1969-73	4,417,967	11.82	293,736	.79	81,953	.22	373,627
1974-78	4,296,509	12.28	322,978	.92	88,231	.25	349,881

The share volume of trading variable clearly supported both expectations. The results contained in Table 2 indicate a significant difference in the initial trading volume and the change over time was likewise significantly different. Specifically, the average annual volume for top tier stocks during the first five years was over 4.5 million shares compared to less than 900 thousand for the bottom tier stocks--this represents a significant difference. By the last five year period, the top tier stocks were averaging over 15 million shares a year, compared to a little over 1 million shares for the bottom tier stocks. Again, this represents a significant difference in the change over time for the two tiers. The results relative to all issues on the NYSE likewise show the expected trends. During the first five years, the average top tier stock had about 3.3 times as much volume as the average NYSE stock. By the end, this ratio was almost six times. In contrast, the bottom tier stocks lost ground relative to the average stock--from 62 percent, the relative volume declined steadily to 44 percent.

The initial trading turnover results in Table 3 were unexpected because they indicated that the second and third tier stocks were experiencing much higher turnover than the top tier stocks--about .25 versus .14. The ANOVA tests indicated that there was a significant difference in turnover between all three tiers at the .01 level. More important, the changes in the turnover rates clearly supported our liquidity hypothesis. Specifically, during this period the top tier stocks experienced a fairly consistent increase in turnover, although it was not statistically significant. In contrast, the bottom tier stocks experienced a consistent decline in trading turnover that was statistically significant. The time-tier test confirmed the significant

TABLE 2

AVERAGE ANNUAL SHARE VOLUME FOR COMPANIES
IN ALTERNATIVE TIERS AND RELATIVE TO
ALL ISSUES ON THE NYSE

YEAR	Tier 1		Tier 2		Tier 3		NYSE
	Ave. (000)	Relative	Ave. (000)	Relative	Ave. (000)	Relative	Ave. (000)
1964	3,586.7	3.89	1,070.0	1.16	465.3	.50	923.0
1965	3,623.4	3.26	1,615.9	1.45	584.6	.53	1,112.1
1966	4,423.3	3.34	1,941.7	1.47	669.5	.51	1,324.2
1967	5,065.3	2.98	2,602.7	1.53	1,282.1	.76	1,697.5
1968	6,242.9	3.34	2,587.6	1.39	1,320.3	.71	1,866.8
1969	7,474.9	4.21	2,035.2	1.15	955.4	.54	1,773.9
1970	8,048.7	4.61	1,939.0	1.11	992.3	.57	1,746.2
1971	9,530.1	4.31	2,978.6	1.35	1,214.3	.55	2,213.4
1972	9,707.5	4.32	3,209.9	1.43	1,310.0	.58	2,244.7
1973	10,777.8	5.11	2,615.5	1.24	883.5	.42	2,107.2
1974	9,399.0	5.12	2,016.4	1.10	581.4	.32	1,837.5
1975	11,318.9	4.72	2,730.8	1.14	926.4	.39	2,400.0
1976	17,904.3	6.84	4,040.4	1.54	1,117.5	.43	2,617.8
1977	17,550.8	6.81	3,330.3	1.29	1,207.9	.47	2,578.5
1978	20,722.3	5.97	5,030.7	1.45	1,901.1	.55	3,472.2
1964-68	4,588.3	3.31	1,963.6	1.42	864.4	.62	1,384.7
1969-73	9,107.8	4.52	2,555.2	1.27	1,071.1	.53	2,017.1
1974-78	15,379.1	5.96	3,429.7	1.33	1,146.9	.44	2,581.2

TABLE 3

AVERAGE SHARE TRADING TURNOVER FOR COMPANIES
IN ALTERNATIVE TIERS AND RELATIVE TO AVERAGE
TURNOVER FOR ALL STOCKS ON THE NYSE

YEAR	Tier 1		Tier 2		Tier 3		NYSE
	Ave.	Rel.	Ave.	Rel.	Ave.	Rel.	Ave.
1964	.142	1.01	.222	1.59	.271	1.94	.14
1965	.148	.93	.313	1.96	.323	2.02	.16
1966	.193	1.07	.310	1.72	.394	2.19	.18
1967	.182	.83	.326	1.48	.579	2.63	.22
1968	.195	.81	.310	1.29	.727	3.03	.24
1969	.191	.96	.234	1.17	.341	1.70	.20
1970	.187	.98	.194	1.02	.275	1.45	.19
1971	.253	1.10	.277	1.20	.368	1.60	.23
1972	.181	.79	.268	1.17	.379	1.65	.23
1973	.198	.99	.228	1.14	.224	1.12	.20
1974	.147	.92	.168	1.05	.141	.88	.16
1975	.216	1.03	.227	1.08	.247	1.18	.21
1976	.257	1.12	.287	1.25	.257	1.12	.23
1977	.233	1.11	.226	1.08	.262	1.25	.21
1978	.284	1.05	.317	1.17	.417	1.54	.27
1964-68	.172	.91	.296	1.57	.459	2.44	.188
1969-73	.202	.96	.240	1.14	.317	1.51	.210
1974-78	.227	1.05	.245	1.13	.265	1.23	.216

difference in change for tier 1 versus tier 3 and tier 2 versus tier 3. Again, the relative results bear this out--the top tier stocks had a consistent increase in the relative ratio (.91 to 1.05), while the bottom tier stocks experienced a significant decline in the relative ratio (2.44 to 1.23).

In summary, these two indicators of market liquidity indicate a much higher level of liquidity for the top tier stocks and also clearly indicate that the difference in liquidity increased during this period to the detriment of bottom tier stocks.

Price Volatility

Because we expected the lower tier stocks to experience reduced market liquidity we hypothesized that their stock prices would become more volatile. The first measure of price volatility used is the annual range of prices during the year as a percent of the mid-ranges:

$$(H - L / H + L \div 2).$$

The results in Table 4 indicate that lower tier stocks definitely are more volatile than the stocks in the top tier. On average, the tier 2 stocks are about 40 percent more volatile than the tier 1 stocks and the bottom tier stocks are at least twice as volatile as tier 1 stocks (the difference between tier 1 and 3 was significant at the .12 level). The results indicate that the stocks in all three tiers and the aggregate market experienced an increase in volatility during this period. This is consistent with the results in Wachowicz and Reilly [64]. In terms of differential changes, the results indicate that for the total period, the top tier stocks experienced a larger

TABLE 4

AVERAGE ANNUAL PRICE RANGE AS A PERCENT OF
MID-RANGE FOR COMPANIES IN ALTERNATIVE TIERS AND
RELATIVE TO PERCENT RANGE FOR S+P400

YEAR	Tier 1		Tier 2		Tier 3		S+P400
	Ave.	Rel.	Ave.	Rel.	Ave.	Rel.	Ave.
1964	.084	.62	.102	.76	.498	3.69	.135
1965	.104	.79	.209	1.59	.257	1.96	.131
1966	.176	.69	.300	1.18	.298	1.17	.254
1967	.138	.63	.182	.83	.382	1.75	.218
1968	.131	.61	.222	1.03	.281	1.30	.216
1969	.188	1.09	.221	1.28	.266	1.54	.173
1970	.331	1.08	.336	1.10	.468	1.53	.306
1971	.193	1.26	.214	1.40	.327	2.14	.153
1972	.170	1.01	.171	1.01	.338	2.00	.169
1973	.247	.94	.414	1.58	.525	2.00	.262
1974	.374	.80	.349	.75	.445	.96	.465
1975	.270	.84	.362	1.13	.680	2.12	.321
1976	.214	1.24	.258	1.49	.512	2.96	.173
1977	.109	.63	.192	1.10	.517	2.97	.174
1978	.237	1.10	.483	2.24	.600	2.78	.216
1964-68	.127	.66	.203	1.06	.343	1.80	.191
1969-73	.226	1.06	.271	1.27	.385	1.81	.213
1974-78	.241	.89	.329	1.22	.551	2.04	.270

increase in volatility. In contrast, between the last two five year periods (1969-73 vs. 1974-78), the stocks in tier 3 experienced the largest increase followed by tier 2 while the top tier had the smallest increase (actually the relative volatility declined). Notably, it is during this period when the institutions became dominant. None of the changes over the 15 years were significantly different.

The second measure of price volatility is the average standard deviation of monthly rates of return during the three five year periods. The results in Table 5 part A confirm that the tier 3 stocks are the most volatile. The tier 3 stocks always had the largest standard deviation but it was not significantly larger than the other tiers. In addition, the average standard deviation for the stocks in tier 3 experienced the largest increase in standard deviation over the three periods but again, none of the increases were significant. The increase in tier 1 over time was greater than tier 2 at the 10 percent level but no other comparisons were significant. All three groups had a higher average standard deviation than the market portfolio, but all three tiers experienced a decline in the relative ratio.

The third measure of volatility is the average beta coefficient for the individual stocks relative to the Fisher NYSE Index. The results in Table 5 part B show that there was a significant difference in the average beta during the three periods. The difference between tier 1 and 2 was significant at the .01 level while tier 1 and 3 and 2 and 3 were significant at the .10 level. The only tier that experienced a significant change over time was tier 2. Finally, the change in beta for tier 2 was significantly different than either tier 1 or tier 3. The change in 1 versus 3 was not significant.

TABLE 5

AVERAGE STANDARD DEVIATION OF MONTHLY RATES OF
RETURN AND AVERAGE BETAS FOR COMPANIES IN
ALTERNATIVE TIERS AND RELATIVE TO A MARKET SERIES

A. Average Standard Deviation

	<u>Tier 1</u>		<u>Tier 2</u>		<u>Tier 3</u>		<u>Market Series</u>
	Ave.	Rel.	Ave.	Rel.	Ave.	Rel.	Ave.
1964-68	6.26	2.03	7.88	2.55	8.95	2.90	3.09
1969-73	7.91	1.82	9.26	2.13	11.17	2.57	4.35
1974-78	8.22	1.60	9.46	1.84	12.05	2.34	5.15

B. Average Systematic Risk (Beta)

	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>
1964-68	1.01	1.16	1.25
1969-73	1.06	1.30	1.51
1974-78	0.95	1.21	1.09

In summary, all three measures indicated that the stocks in the bottom tiers were always more volatile than stocks in the top tier. Both the average percent range and standard deviation indicated that tier 3 experienced the largest increase in volatility during the most recent five year period. The beta results only indicated a significant change over time for tier 2 versus the other tiers.

Dividend Payout Ratio

It was hypothesized that initially small firms would have a lower payout ratio than large firms and that the difference in payout would increase over time because small firms would find it difficult to get equity capital from the primary market and would be forced to reduce their payout even more.

The results in Table 6 tend to support these expectations. The average payout for top and middle tier firms were generally similar and there was a difference between tier 1 and 3 but it was not significant. The results over time likewise support the hypothesis because the stocks in tier 3 experienced the largest decline in payout but it was not significant. Notably, the difference in the payout ratio was greater at the end of the period than at the beginning but none of the time-tier test^s were significant. It is also noteworthy that the tier one payout gained relative to the S+P400 (.90 to .96); tier two declined slightly (.87 to .85), and tier three declined the most (.72 to .67).

Debt-Equity Ratio

The results in Table 7 figures confirm the secular increase in financial leverage during the 15 year period--i.e., the average debt-equity ratio for FTC firms almost doubled from .23 to .44.

Initially, all the tiers were approximately equal at about .30. Subsequently, the bottom tier companies increased their debt-equity ratio to about .80. The results indicate that there were significant differences between the tiers for the total period--both tier 1 and tier 3 experienced significant increases in their debt-equity ratios. Finally, the time-tier test indicated that tier 3 experienced a significantly larger increase than tier 2. Notable, the increase in the debt-equity ratio for tier 3 was not significantly larger than tier 1 apparently due to 1974. During the most recent five year period the tier ¹ $\frac{1}{3}$ ratio was in the 50-60 percent range except for 1974 (1.072) compared to about 70-80 percent for tier 3. Also, while the relative ratio for top tier firms declined from 1.36 to 1.13, the relative ratio for bottom tier firms increased from 1.36 to 1.43 (and was even higher during 1976 and 1977).

SUMMARY AND CONCLUSION

Summary

This paper examined what happened during the period 1964-1978 to firms in three tiers in terms of market liquidity, stock price volatility, dividend policy, and the debt-equity ratio.

The sample firms were randomly selected and placed into one of three tiers on the basis of market value because this is probably the major factor that determines what stocks institutions include in their portfolios. The stocks had significant differences in size ranging from about \$4 billion for top tier companies to \$100 million for bottom tier firms.

TABLE 6

AVERAGE DIVIDEND PAYOUT RATIO FOR COMPANIES
IN ALTERNATIVE TIERS AND RELATIVE TO
S+P400 PAYOUT

YEAR	Tier 1		Tier 2		Tier 3		S+P400
	Ave.	Rel.	Ave.	Rel.	Ave.	Rel.	Ave.
1964	.461	.85	.438	.81	.360	.67	.54
1965	.451	.87	.418	.80	.347	.67	.52
1966	.446	.87	.438	.86	.358	.70	.51
1967	.480	.91	.481	.91	.386	.73	.53
1968	.491	.94	.484	.93	.407	.78	.52
1969	.549	1.04	.517	.98	.361	.68	.53
1970	.624	1.06	.645	1.09	.450	.76	.59
1971	.532	1.00	.552	1.04	.369	.70	.53
1972	.465	.95	.431	.88	.314	.64	.49
1973	.354	.91	.337	.86	.328	.84	.39
1974	.365	.96	.349	.92	.283	.75	.38
1975	.410	.93	.379	.86	.317	.72	.44
1976	.374	.94	.334	.84	.247	.62	.40
1977	.413	.96	.375	.87	.244	.57	.43
1978	.410	1.00	.315	.77	.274	.67	.41
1964-68	.466	.90	.452	.87	.372	.72	.52
1969-73	.505	.99	.496	.97	.364	.71	.51
1974-78	.394	.96	.350	.85	.273	.67	.41

TABLE 7

AVERAGE DEBT-EQUITY RATIOS FOR COMPANIES
IN ALTERNATIVE TIERS AND RELATIVE TO
ALL INDUSTRIAL FTC FIRMS

YEAR	Tier 1		Tier 2		Tier 3		F A
	Ave.	Rel.	Ave.	Rel.	Ave.	Rel.	
1964	.318	1.36	.301	1.29	.317	1.36	.2
1965	.328	1.26	.319	1.22	.392	1.50	.2
1966	.364	1.28	.378	1.33	.433	1.52	.2
1967	.368	1.16	.448	1.41	.461	1.45	.3
1968	.515	1.46	.452	1.28	.552	1.56	.3
1969	.514	1.37	.492	1.32	.588	1.57	.3
1970	.616	1.53	.548	1.36	.712	1.77	.4
1971	.558	1.33	.519	1.24	.712	1.70	.4
1972	.559	1.34	.517	1.24	.635	1.52	.4
1973	.515	1.32	.510	1.30	.624	1.60	.3
1974	1.072	2.61	.519	1.26	.875	2.13	.4
1975	.662	1.54	.552	1.28	.728	1.69	.4
1976	.542	1.28	.535	1.26	.836	1.98	.4
1977	.504	1.17	.516	1.19	.812	1.88	.4
1978	.496	1.13	.533	1.21	.632	1.43	.4
1964-68	.379	1.31	.380	1.31	.431	1.47	.2
1969-73	.552	1.38	.517	1.29	.654	1.63	.4
1974-78	.655	1.53	.531	1.24	.777	1.82	.4

The market liquidity results indicated a significant difference in shares traded to begin with, and the difference became significantly larger during the period. Regarding trading turnover, the initial value for lower tier stocks was higher, but during the period, while top tier turnover increased, the turnover for bottom tier stocks declined which confirms the deterioration of liquidity for these stocks.

The analysis of price volatility on the basis of the percent range of annual prices indicated that stocks in the lower tiers definitely had a higher level of price volatility for the total period and it increased more during the most recent period. The average standard deviation indicated that the bottom tier stocks were more volatile initially and the volatility increased more over time. The average betas indicated that the lower tiers always had higher betas but the changes over time were not significantly different.

The dividend payout ratios for bottom tier firms was lower initially and declined more during the time period than top tier firms but the difference was not statistically significant. The debt-equity ratios were similar during the initial years, but the lower tier firms increased their ratios by more than the top tier firms. The difference between the top and bottom tiers was not significant but this appeared to be due to a single year and the overall status appeared to indicate a definite difference.

Conclusion

The purpose was to examine the changes that had transpired over the recent 15 year period because of the growth of a tiered stock

market. The results clearly document some major affects: although almost all the changes were as hypothesized, not all of them were statistically significant. Clearly the lower tier firms have experienced a decline in relative market liquidity and dividend payout, while experiencing an increase in stock price volatility and financial leverage.

Almost all the changes are detrimental to the lower tier stocks because these stocks have become riskier relative to top tier stocks. The impact could cause further deterioration in the secondary markets for these stocks which, in turn, will make it more difficult for them to acquire new equity capital from the primary market.

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