

# The Liquidity of Hong Kong Stocks: Statistical Patterns and Implications

Geng Xiao and Yuhong Yan<sup>1</sup>

Research Department of the Securities and Futures Commission

## Summary

Statistical analysis in this paper shows that in Hong Kong, other things given, the larger the company size, the lower its liquidity ratio, which is defined as the ratio of annualized transaction value over market capitalization. Also, other things being equal, the higher the stock price, the lower the liquidity ratio. The size and price variables can explain statistically 30% of the variations in the liquidity ratio.

In theory, company size and nominal stock price should have little impact on the liquidity ratio. But in reality, some high price blue chips are less frequently transacted in Hong Kong. This could be attributed to overseas trading, large and fixed holding by family shareholders and large board lot sizes.

On the other hand, low nominal stock prices could give the less sophisticated small retail investors a mis-leading impression that these stocks are cheap and worth trading, leading to a high liquidity ratio for penny stocks. Indeed, small size deals, which concentrated more on penny and small cap stocks, are large in number but small in terms of aggregate value. In August 2001 deals below the size of HK\$30,000 accounted for 45% in the total number of deals but only for 6.7% in the total transaction value.

Why do investors trade so intensively penny stocks by small size deals? One possibility is that they can

not afford to trade high-price blue chips with excessively large board lot values. Using the group of stocks with their board lot values greater than HK\$50,000 as an example, in August 2001, half of their deals were for one board lot! These one-board-lot deals amounted to 12.2% of the total transaction value in this group. This suggests that reduction in board lot size or stock splits could help small retail investors access blue chips, improving overall liquidity.

## Patterns of Liquidity for Hong Kong Stocks

Liquidity is one of the key conditions desired by listed companies and investors. It indicates how easy investors could buy and sell stocks without leading to sharp price changes. One key indicator for liquidity of a stock is its liquidity ratio, which is defined as the ratio of its annualised transaction value<sup>2</sup> over its market capitalisation. This paper focuses on examining the statistical patterns of the liquidity ratio of Hong Kong stocks using company-level and transaction-level data in August 2001 from HKEx.

For analytic purposes, the liquidity ratio is a better indicator for measuring liquidity as it controls the influences of size and stock price on the indicator. Hence, it is possible to compare the liquidity ratio of two companies with different size and price. Other

[1] *The analysis in this article is that of the authors and does not necessarily represent that of the Securities and Futures Commission.*

[2] *The statistics of transaction value used in this study includes both buy and sell amounts and hence double-counts the value of shares changed hands.*

commonly used indicators for liquidity, such as daily transaction value, would not have this convenience. Apparently company size and stock price would influence heavily its daily transaction value. Given size and price, the liquidity of a stock can be improved only through increases in liquidity ratio.

However, it is useful to review the average daily transaction value of Hong Kong stocks before examining statistically the pattern of the liquidity ratio. Table 1 shows key indicators for groups of stocks with different ranges of average daily transaction value.

**Table 1 - Key Indicators by Range of Average Daily Transaction Value (August 2001)**

Range of Average Daily Transaction Value (HK\$ million)	(1) Number of Companies		(2) Number of Deals (daily average, group sum)		(3) Transaction Value (HK\$ billion, annualised group sum)		(4) Market Cap (HK\$ billion, group sum)		Liquidity Ratio (3) / (4)
	Number	%	Number	%	Value	%	Value	%	
Below 0.1	159	22.3%	795	0.7%	2.0	0.1%	64.1	1.6%	3.1%
0.1+ to 1	266	37.4%	4,658	4.1%	24.8	0.9%	138.3	3.4%	17.9%
1+ to 10	172	24.2%	18,271	16.0%	163.0	5.6%	268.4	6.6%	60.7%
10+ to 100	94	13.2%	47,558	41.6%	719.8	24.9%	770.7	19.0%	93.4%
Over 100	21	2.9%	43,132	37.7%	1,979.1	68.5%	2,824.8	69.5%	70.1%
Total	712	100.0%	114,414	100.0%	2,888.6	100.0%	4,066.2	100.0%	71.0%

Note: Unless otherwise noted, sources of data for all tables in this paper are from HKEx. There are 750 companies listed in the main board. This study however includes only 712 companies that recorded transactions in August.

In August 2001, 21 Hong Kong stocks achieved average daily transaction value of more than HK\$100 million. Their combined transaction value is as high as 68.5% and their combined market capitalisation exceeded HK\$2,800 billion or 69.5%. On the other hand, these 21 stocks only accounted for 37.7% of the deals physically completed in the stock exchange. The average liquidity ratio of the 21 companies is only 70.1%.

To put the liquidity ratio for Hong Kong stocks into perspective, it is useful to have a cross-market

comparison of liquidity ratio. Using October and November 2001 statistics, the liquidity ratio for Hong Kong markets was 90%, the lowest among the largest fifteen markets in the world.<sup>3</sup> The liquidity ratio for markets in Italy, Korea, Taiwan, and UK exceeded 400%. Even the Mainland China and Japan achieved a liquidity ratio of 106% and 132% respectively. Apparently the liquidity ratio for Hong Kong markets is very low by international standards.

Table 2 shows the basic patterns of liquidity ratio for Hong Kong stocks by providing key indicators for stocks grouped by their range of liquidity ratio.

[3] *The liquidity ratio for the whole market cited here is derived from the international market statistics at the end of this Quarterly Bulletin by adjusting double-counting of buy and sell transaction values.*

**Table 2 - Key Indicators by Range of Liquidity Ratio (August 2001)**

Range of Liquidity Ratio	(1) Number of Companies		(2) Number of Deals (daily average, group sum)		(3) Transaction Value (HK\$ billion, annualised group sum)		(4) Market Cap (HK\$ billion, group sum)		Liquidity Ratio (3) / (4)
	Number	%	Number	%	Value	%	Value	%	
Below 10%	145	20.4%	1,135	1.0%	9.5	0.3%	264.0	6.5%	3.6%
10%+ to 50%	272	38.2%	15,422	13.5%	561.4	19.4%	1,621.8	39.9%	34.6%
50%+ to 100%	122	17.1%	38,573	33.7%	1,322.2	45.8%	1,699.7	41.8%	77.8%
100%+ to 200%	61	8.6%	18,893	16.5%	490.8	17.0%	361.9	8.9%	135.6%
Over 200%	112	15.7%	40,392	35.3%	504.7	17.5%	118.9	2.9%	424.5%
<b>Total</b>	<b>712</b>	<b>100.0%</b>	<b>114,414</b>	<b>100.0%</b>	<b>2,888.6</b>	<b>100.0%</b>	<b>4,066.2</b>	<b>100.0%</b>	<b>71.0%</b>

As shown in Table 2, 112 stocks recorded their liquidity ratio above 200%. This most liquid group of stocks generated 35.3% of the total deals, 17.5% of the total transaction value, and enjoyed a group liquidity ratio as high as 424.5%, well above the 71% for the sample average. However, their share in market cap is as small as 2.9%. The second most liquid group of stocks with their liquidity ratio above 100% but below 200% added only 8.9% to the total market capitalisation. This indicates that low market cap stocks are traded much more frequently than stocks with large market capitalisation.

The results of regression analysis provide much more details about the statistical patterns of liquidity ratio for Hong Kong stocks. They are included in the Appendix to this paper. Key findings are summarised here:

1. The regression as a whole can explain statistically more than 95% of the variations in the liquidity ratios across about 700 sample companies. In particular, the company size and stock price alone can explain about more than 30% of the variations.
2. The company size and stock price are strongly and negatively correlated with the liquidity ratio. Other things given, one percent increase in total issued shares or stock price may correspond to almost one percent drop in the liquidity ratio.
3. The median of deal size is strongly and positively correlated with the liquidity ratio. Other things given, the larger the size of the deals, the higher the liquidity ratio. Since the institutional investors and high-income investors are likely to trade by large size deals, their active participation would be helpful to improve the liquidity ratio of Hong Kong stocks.
4. The number of deals is highly positively correlated with the liquidity ratio. Other things given, the more deals the higher the liquidity ratio. One percent increase in number of deals would lead to almost one percent increase the in liquidity ratio.

5. Variation of the deal size is found correlated significantly with the liquidity ratio. Here, the variation of the deal size could represent the diversity of investors from low-income (small size deals) to high-income (large size deals), and from retail investors (small) to institutional investors (large). This means broader investor base would improve liquidity for Hong Kong stocks.

## Company Size, Stock Price and Liquidity

Among the five key findings from regression analysis, the one related to company size and stock price is not so straightforward and need further examination.

Market capitalisation is the most useful measure of size for listed companies. Unlike stock prices, the

companies cannot freely adjust their market cap by stock consolidations or splits. It is determined by the market and can only increase through rising prices or fund-raising. The scale of market capitalisation could be regarded as an indicator for the past performance. Large market capitalisation shows the companies' ability to raise and maintain the market value of their assets.

This however does not imply that small cap companies do not have good performance! Some small cap companies can and do have good performance and they have grown into large cap stocks like the Microsoft corporation in the US. Also, more penny stocks do not lead automatically to more small cap stocks since the absolute level of stock prices is only a nominal scale subject to free adjustments by stock consolidations or splits. Hence, it is important to examine the relation between the market cap of the listed companies and the liquidity ratio.

**Table 3 - Key Indicators by Market Capitalisation (August 2001)**

Range of Market Cap (HK\$ bn)	(1) Number of Companies		(2) Number of Deals (daily average, group sum)		(3) Transaction Value (HK\$ billion, annualised group sum)		(4) Market Cap (HK\$ billion, group sum)		Liquidity Ratio (3) / (4)
	Number	%	Number	%	Value	%	Value	%	
Below 0.1	79	11.1%	1260	1.1%	5.4	0.2%	5.1	0.1%	104.8%
0.1+ to 1	430	60.4%	25579	22.4%	218.7	7.6%	155.7	3.8%	140.4%
1+ to 10	159	22.3%	37189	32.5%	493.6	17.1%	440.7	10.8%	112.0%
10+ to 100	36	5.1%	26192	22.9%	681.8	23.6%	1043.3	25.7%	65.4%
Over 100	8	1.1%	24195	21.1%	1489.2	51.6%	2421.4	59.6%	61.5%
Total	712	100.0%	114414	100.0%	2888.6	100.0%	4066.2	100.0%	71.0%

Table 3 shows key indicators by market cap grouping. The concentration of market cap at a few top companies is well known for Hong Kong. The top eight companies recorded their individual market

cap above HK\$100 billion and shared 59.6% of the total market cap, 51.6% of the total transaction value, and 21.1% of the total number of deals.

The top eight and the next 36 companies by market cap recorded their individual market cap above HK\$10 billion. But they only had a group liquidity ratio below 65.4% while the rest of the stock groups achieved group liquidity ratio of well above 100%.

The small cap stocks with market cap below HK\$1 billion shared only 3.9% of the total market cap but shared 7.8% in total transaction value, 23.5% in total number of deals, 71.5% in number of listed companies. This shows the prevalence of small cap stocks in Hong Kong.

Similar to penny stocks, small cap stocks dominated small size transactions in Hong Kong. In August 2001, stocks with their market capitalization less than HK\$1 billion accounted for 49% of the deals smaller than HK\$10,000, 32.1% of the deals between the size HK\$10,000 and HK\$20,000, and 25.1% of the deals between the size HK\$20,000 and HK\$30,000.

However, international comparison as shown in Table 4 reveals that the proliferation of small cap stocks in Hong Kong is not as bad as that of penny stocks (to be discussed later in Table 6).

**Table 4 - Comparison across Selected Markets by Market Capitalisation (30 November 2001)**

Range of Market Cap (US\$ million)	Below 20	20+ to 100	100+ to 1000	Above 1,000	Total Number of Companies
<b>Selected Markets (main board)</b>	<b>Share in Total Number of Companies (%)</b>				
<b>Hong Kong</b>	22.6	45.6	25.2	6.6	739
<b>Mainland</b>	0.0	0.1	93.6	6.3	1,125
<b>US</b>	1.3	8.8	37.5	52.4	1,551
<b>UK</b>	36.8	26.6	25.2	11.4	1,724
<b>Japan</b>	6.0	30.9	45.1	18.0	2,098
<b>Singapore</b>	35.3	39.8	19.7	5.2	422
<b>Taiwan</b>	16.6	42.3	32.8	8.3	579
<b>Korea</b>	40.3	39.1	16.1	4.4	682

Note: Only common and ordinary shares of domestic companies with market capitalisation recorded in the Bloomberg have been considered in the sample. For Mainland, only A shares have been included.

Source: Bloomberg

In fact the share of stocks with their individual market cap below US\$20 million is only 22.6% for Hong Kong, well below 40.3% for Korea, 36.8% for the UK, and 35.3% for Singapore. However, Hong Kong stands out in stocks with market cap ranging from US\$20 million to US\$100 million, which have a share

of 45.6% in the total number of listed companies, higher than 42.3% in Taiwan, 39.8% in Singapore, 39.1% in Korea. Also, Hong Kong does not seem to be an outlier for the share of mid-cap and large cap stocks above US\$100 million by international comparison.

In summary, the structure of market cap for Hong Kong stocks in the main board is similar with that found in other comparable markets.

What is the structure of stock prices in Hong Kong? How is it related to liquidity? In theory, the nominal level of stock prices should have no impact on liquidity ratio since it is always possible for companies to consolidate their shares, say 10 to 1, or split their shares, say 1 to 10, to achieve any nominal level of prices.

Indeed, as shown by Table 5 below, the liquidity ratio for stocks with very different ranges of nominal

prices [for example, (A) below HK\$0.1; (B) between HK\$0.1 to HK\$0.5, and (C) between HK\$1 to HK\$10] have similar levels of liquidity ratios around 100%.

However, the gap of the liquidity ratios between stocks with prices from HK\$0.5 to HK\$1 and those with prices above HK\$10 is very large (148.7% - 61.4% = 87.3%). In particular, the group of 34 stocks with prices above HK\$10 not only recorded lowest liquidity ratio in the five groups in Table 5 but also captured 75.3% of the total market cap, 65% of the total transaction value, and only 32.7% of the number of deals.

**Table 5 - Key Indicators by Stock Price (August 2001)**

Range of Stock Price (HK\$)	(1) Number of Companies		(2) Number of Deals (daily average, group sum)		(3) Transaction Value (HK\$ billion, annualised group sum)		(4) Market Cap (HK\$ billion, group sum)		Liquidity Ratio (3) / (4)
	Number	%	Number	%	Value	%	Value	%	
Below 0.1	91	12.8%	3,800	3.3%	19.8	0.7%	17.9	0.4%	110.2%
0.1+ to 0.5	248	34.8%	13,216	11.6%	91.6	3.2%	92.4	2.3%	99.1%
0.5+ to 1	117	16.4%	11,844	10.4%	106.5	3.7%	71.6	1.8%	148.7%
1+ to 10	222	31.2%	48,153	42.1%	792.3	27.4%	822.8	20.2%	96.3%
Over 10	34	4.8%	37,402	32.7%	1,878.4	65.0%	3,061.4	75.3%	61.4%
Total	712	100.0%	114,414	100.0%	2,888.6	100.0%	4,066.2	100.0%	71.0%

As indicated in Table 5, there are too many penny stocks in Hong Kong, 64% by number of companies but sharing only 4.5% in the total market cap. These penny stocks are traded more frequently than the

high price blue chips. The penny stocks shared 25.3% in the total number of deals but only 7.6% in the total transaction value.

**Table 6 - Comparison across Selected Markets by Stock Price  
(30 November 2001)**

Range of Stock Price (US\$)	Below 0.2	0.2+ to 0.5	0.5+ to 1	1+ to 2	2+ to 5	5+ to 10	Above 10	Total Number of Companies
<b>Selected Markets (main board)</b>	<b>Share in Total Number of Companies (%)</b>							
<b>Hong Kong</b>	75.0	14.2	5.3	2.5	2.0	0.7	0.4	755
<b>Mainland</b>	0.0	0.4	13.0	68.1	18.4	0.1	0.0	1125
<b>US</b>	0.0	0.4	1.2	2.3	6.1	10.2	79.8	1553
<b>UK</b>	21.0	13.9	12.7	16.0	20.8	11.1	4.5	1751
<b>Japan</b>	0.3	3.7	10.2	18.5	30.1	15.7	21.5	2098
<b>Singapore</b>	64.1	15.2	9.9	3.9	3.7	2.5	0.7	434
<b>Taiwan</b>	40.1	31.0	17.6	7.9	3.3	0.0	0.2	584
<b>Korea</b>	0.0	3.2	6.5	13.0	32.6	22.0	22.7	682

Note: Only common and ordinary shares of domestic companies with price quotations from the Bloomberg have been considered in the sample. For Mainland, only A shares have been included.

Source: Bloomberg

Table 6, priced in USD, shows the number of companies in the stock price group below USD 20 cents or HK\$1.56 is 75% for Hong Kong, 64.1% for Singapore, 40.1% for Taiwan, 21% for UK, and zero percent for the US.

This is probably due to the lack of effective delisting mechanism and minimum price requirements in the Hong Kong market. As mentioned before, in theory, the nominal prices should not have any impact on liquidity or company performance since the companies can always adjust their nominal prices through stock consolidations or splits.

But in reality, nominal prices may matter. Less sophisticated retail investors may regard stocks with their prices as low as a few pennies as cheap stocks. They may act on this mis-leading impression to buy cheap and hope to sell high. It is possible that companies with poor quality may be encouraged to keep their nominal prices as low as it is useful for attracting liquidity from speculative and naive investors.

Indeed, penny stocks dominated the small size transactions in Hong Kong. In August 2001, stocks with their prices less than HK\$1 accounted for 56.7% of the deals smaller than HK\$10,000, 34.5% of the deals between the size HK\$10,000 and HK\$20,000, 25.2% of the deals between the size HK\$20,000 and HK\$30,000.

This raises the question whether penny stocks should be required to consolidate so that their nominal prices would not be too low to mis-lead the less sophisticated retail investors.

On the other hand, a number of demand-side factors could affect the liquidity ratio of high price and large cap stocks:

- When investors buy high price and large cap blue chips, they may hold them for much longer time than for small cap and penny stocks.
- Some large cap stocks may have less freely traded shares because of the ownership lockup with family and large shareholders.

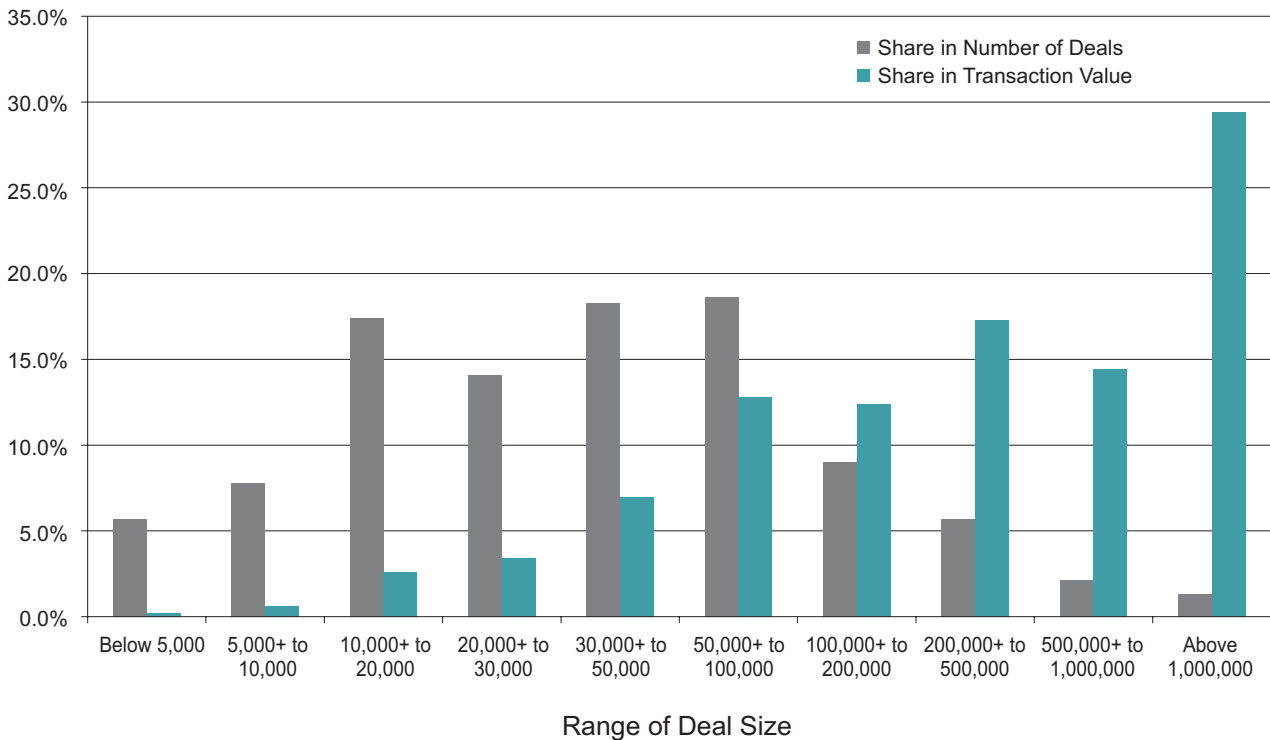
- Many blue chips in Hong Kong are dual-listed and traded overseas. For example, the giant global bank HSBC's transaction value in London is actually larger than that in Hong Kong because about two thirds of its shareholders are outside of Hong Kong.

The above demand-side explanation of low liquidity ratio for blue chips is important and useful. The next section however examines a supply-side explanation, focusing on excessively large board lot size for a few high price and large cap stocks.

## Board Lot Size and Liquidity

Excessively large board lot size may exclude low-income investors from investing in high price blue chips. For example, in August 2001, Cheung Kong, Hutchison, and SHK Properties had their average board lot value as high as above HK\$65,000 (see Table A3 in the Appendix for details). Many low-income retail investors cannot afford to buy even one board lot of the three blue chip stocks. Instead, they may turn to those stocks with smaller board lot value. This is reflected in Chart 1, which shows that small size deals accounted for a large share in the total number of deals but generated only a small percentage of the total transaction value.

**Chart 1 - Distribution of Number of Deals and Transaction Value by Deal Size (August 2001)**



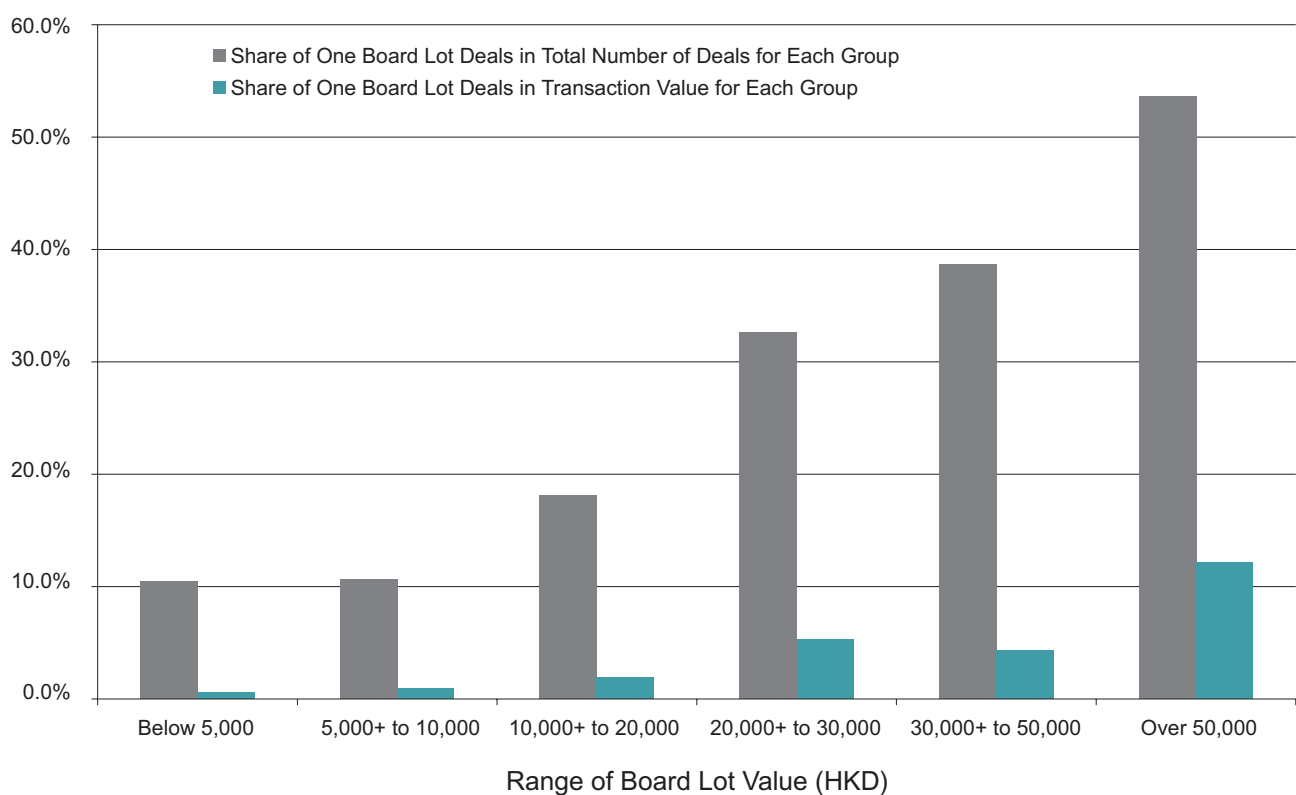
In chart 1, deals below the size of HK\$30,000 accounted for about 45% of the total number of deals but only 6.7% of the total transaction value. On the other hand, deals above the size of HK\$100,000 accounted for 73.5% of the total transaction value but only about 18.2% of the total number of deals.

In August 2001, 22 listed companies had their average board lot value above HK\$15,000. They accounted for 51.6% of the total market cap, 43.4% of the total transaction value but only 19.9% of the total number of deals (see Table A3 in the Appendix).

In particular, six companies (Cheung Kong, Hutchison, and SHK Properties plus Guoco Group, HSBC, and Henderson Land Development) had their average board lot value above HK\$30,000. They accounted for 30.9% of the total transaction value but only 9.9% of the total number of deals in August 2001.

Chart 2 shows the share of one-board-lot deals both in the number of deals and in the transaction value for each of the six ranges of the board lot value. This information is replicated from the cross-tabulation in Table A2 of the Appendix.

**Chart 2 - Share of One-Board-Lot Deals (August 2001)**



As shown in Chart 2, as the board lot value increases the share of one-board-lot deals rises.

The group of stocks with their board lot value over HK\$50,000 has only three companies (Cheung Kong, Hutchison, and SHK Property). For them, the number of one-board-lot deals is as many as 89,554 out of the group total of 167,100 deals. These one-board-lot deals accounted for 53.6% of the total number of deals and 12.2% of the total transaction value for the three companies.

The exceptionally large amount of one-board-lot deals recorded for high price stocks seems to suggest

that the board lot size or the nominal stock price for these stocks is probably too large or too high for attracting low-income retail investors. Reduction in board lot size or stock splits may help to attract more retail investment in blue chips, improving overall liquidity.

On the other hand, as the majority of the deals for penny stocks contain multiple board lots, the board lot size is not an effective constraint for them and has little influence on their deal sizes or transaction value. Also share consolidations for penny stocks need not affect their board lot value if their board lot size is adjusted at the same time. ■

## Appendix

### Regression Analysis

In order to explain systematically the variations in the liquidity ratio across as many as about 700 companies, it is necessary to use regression analysis. Regression can explore how the liquidity ratio is independently correlated with each of the explanatory variables, while controlling for the influence of other explanatory variables.

The explanatory variables selected to explain variations in liquidity ratio are listed in Table A1. Most of the variables are transformed by natural log function, a standard practice to smooth variables when their scale ranges by several orders of magnitude.

The basic regression equation for liquidity ratio is specified as a linear or log-linear function of 12 explanatory variables with 12 coefficients named as A, B, ..., and L:

$\text{Ln}(\text{Liquidity ratio})$

$$\begin{aligned}
 &= A * (\text{board lot size in number of shares}) \\
 &+ B * \text{Ln}(\text{board lot value}) \\
 &+ C * \text{Ln}(\text{market cap}) \\
 &+ D * \text{Ln}(\text{total issued shares}) \\
 &+ E * \text{Ln}(\text{stock price}) \\
 &+ F * \text{Ln}(\text{median of deal size}) \\
 &+ G * \text{Ln}(\text{number of deals}) \\
 &+ H * (\text{variation of stock price}) \\
 &+ I * (\text{variation of deal size}) \\
 &+ J * (\text{variation of daily number of deals}) \\
 &+ K * (\text{dummy for HSI stocks}) \\
 &+ L * \text{constant} \\
 &+ \text{regression residual;}
 \end{aligned}$$

The estimated coefficients and their T-statistics are shown in Table A1 for five regressions. Each of the five has different equation specification obtained by setting some of the coefficients from A to E equal to zero.

For example, in regression equation (1) shown in Table A1, coefficients A, B, and C are set to zero and as a result the three explanatory variables related to board lot size, board lot value, and market cap are excluded from the regression (1). This regression summarises best the patterns of liquidity ratio for Hong Kong stocks from the company and deal-level data in August 2001. The other regressions supplement regression (1), help to answer questions about board lot size and test the robustness of the equation specification by adding, subtracting, and replacing a few relevant variables.

Regression (1) used 698 observations out of a total 712 in the sample. The 14 observations are dropped automatically because some of their variables have zero value and could not pass the natural log transformation of the variables.

The R square for regression (1) is high at 0.96, indicating that 96% of the variations in liquidity ratio could be explained statistically by the included explanatory variables. The high R square in regression (1) is partly attributable to the inclusion of size and price variables:  $\text{Ln}(\text{total shares issued})$  and  $\text{Ln}(\text{stock price})$ . In regression (3), (4) and (5), the size and price variables are dropped, and as a result, their R squares fell sharply to around 0.7. This shows

strong explanatory power of the size and price variables. They can explain more than 30% of the variations in liquidity ratio of Hong Kong stocks.

The regression (1) indicates that the company size and stock price are strongly and negatively correlated with the liquidity ratio. Because of the log-linear specification, the estimated coefficients D (-0.96) for size and E (-0.92) for price are equivalent to the elasticity of liquidity ratio with respect to total issued shares and stock price. This means that other things given, one percent increase in total issued shares may correspond to 0.96 % decrease in the liquidity ratio. Also, other things given, one percent increase in stock price may imply 0.92% drop in the liquidity ratio.

The impacts of size and price variables on liquidity ratio are quite robust as can be seen from regression (2), where  $\ln(\text{market cap})$  replaces both  $\ln(\text{total issued shares})$  and  $\ln(\text{stock price})$ . The coefficient for  $\ln(\text{market cap})$  is statistically significant and the elasticity of liquidity ratio with respect to market cap is about -0.94, similar to that for stock price and total issued shares.

The estimated coefficient F for the variable  $\ln(\text{median of deal size})$  in regression (1) indicates that the median of deal size is strongly positively correlated with liquidity ratio. The size of F (0.83) also suggests that one percent increase in the median of deal size would bring liquidity ratio up by about 0.83%. Since the institutional investors and high-income investors would usually trade in large size deals, their active participation seems helpful to improve liquidity ratio.

As expected,  $\ln(\text{number of deals})$  is highly positively correlated with liquidity ratio in regression (1). The elasticity of liquidity ratio with respect to number

of deals is 0.99. One percent increase in number of deals would lead to almost one percent increase in liquidity ratio.

The variation of stock price, however, is found not statistically correlated with liquidity ratio in regression (1).

Variation of deal size is found correlated significantly with liquidity ratio in regression (1). Here, the variation of deal size could represent the diversity of investors from low-income (e.g. small size deals) to high-income (large size deals) and from retail investors (small) to institutional investors (large). This means broad investor base would improve liquidity for Hong Kong stocks.

Variation of daily number of deals does not seem to have any impact on liquidity ratio in regression (1). This suggests that for Hong Kong market if a stock is actively traded for a few days and then no trading for the rest of the month, its liquidity ratio would not be punished or boosted compared to a stock that is traded evenly during the month, other things given.

Regression (1) also indicates that stocks included in the HSI do not have lower liquidity ratio after controlling for company size and stock price since the estimated coefficient K is actually positive but not so statistically significant. However, if the size or price variables are excluded as in regression (3), (4) and (5), the HSI stocks would have much significantly lower liquidity ratio. In these cases, the HSI dummy are implicitly playing the role of a proxy for company size or stock price level, both of which are negatively correlated with liquidity ratio.

Regressions (3), (4) and (5) attempt to explore the correlation of board lot size or board lot value with liquidity ratio. Although the coefficients A for board

lot size and B for board lot value are both significant and negative (suggesting the larger the board lot, the lower the liquidity ratio), the results are not conclusive. This is because the board lot size is correlated with company size and board lot value is

correlated with both company size and stock price. In another word, the data and variations in the explanatory variables are not rich enough for assessing the independent influence of board lot size on liquidity ratio.

**Table A1 - Liquidity Ratio Regressions (August 2001)**

Dependent Variable	Ln(Liquidity Ratio)				
	(1)	(2)	(3)	(4)	(5)
<i>(A) Board lot size in number of shares</i>			-1.8E-5** (-4.43)		
<i>(B) Ln(board lot value)</i>				-0.14** (-2.87)	-0.39** (-11.41)
<i>(C) Ln(market cap)</i>		-0.94** (-70.76)			
<i>(D) Ln(total issued shares)</i>	-0.96** (-62.63)				
<i>(E) Ln(stock price)</i>	-0.92** (-64.95)		-0.42** (-13.98)	-0.29** (-6.58)	
<i>(F) Ln(median of deal size)</i>	0.83** (37.00)	0.86** (41.24)	0.75** (12.96)	0.75** (12.67)	0.68** (11.33)
<i>(G) Ln(number of deals)</i>	0.99** (94.14)	0.98** (96.05)	0.67** (28.59)	0.67** (28.49)	0.68** (27.97)
<i>(H) Variation of stock price</i>	0.20 (0.67)	0.06 (0.2)	3.04** (4.03)	2.55** (3.41)	3.71** (4.94)
<i>(I) Variation of deal size</i>	0.18** (18.56)	0.18** (18.59)	0.14** (5.81)	0.14** (5.85)	0.13** (5.17)
<i>(J) Variation of daily number of deals</i>	0.02 (0.56)	0.01 (0.17)	0.10 (0.93)	0.10 (0.94)	0.13 (1.21)
<i>(K) Dummy for HSI stocks</i>	0.13** (1.79)	0.14 (1.93)	-1.45** (-8.26)	-1.53** (-8.59)	-1.80** (-10.13)
<i>(L) Constant</i>	6.53** (18.79)	5.86** (22.69)	-11.12** (-20.54)	-10.06** (-16.79)	-7.58** (-15.8)
<b>Total Number of Observations</b>	698	698	698	698	698
<b>R Square</b>	0.96	0.96	0.73	0.73	0.71

Note:

Variation is defined as standard deviation divided by mean.

T-statistics is in the parentheses. Coefficients significant at 95% confidence level are marked by \*\*.

Liquidity ratio = annualised transaction value / market capitalisation.

**Table A2 - Distribution of Number of Deals by Deal Size and Board Lot Value  
(August 2001, main board stocks)**

Range of Deal Size (HK\$)	Range of Board Lot (HK\$)						All
	Below 5,000	5,000+ to 10,000	10,000+ to 20,000	20,000+ to 30,000	30,000+ to 50,000	Over 50,000	
<b>Panel A: Number of Deals</b>							
Below 5,000	<b>144,238</b>	1,458	420	212	254	40	146,622
5,000+ to 10,000	<b>157,792</b>	<b>42,434</b>	370	204	166	174	201,140
10,000+ to 20,000	312,606	<b>57,522</b>	<b>78,992</b>	518	278	126	450,042
20,000+ to 30,000	205,180	59,000	<b>60,604</b>	<b>39,064</b>	236	98	364,182
30,000+ to 50,000	250,104	86,056	80,708	<b>19,832</b>	<b>36,974</b>	178	473,852
50,000+ to 100,000	184,516	74,438	97,010	18,632	<b>17,740</b>	<b>89,554</b>	481,890
100,000+ to 200,000	75,732	42,664	52,930	20,794	16,582	<b>25,120</b>	233,822
200,000+ to 500,000	29,968	26,528	41,156	13,680	10,434	26,456	148,222
500,000+ to 1,000,000	6,908	6,956	14,576	4,728	6,410	14,540	54,118
Above 1,000,000	2,212	2,714	10,406	2,272	6,398	10,814	34,816
<b>Column Total</b>	<b>1,369,256</b>	<b>399,770</b>	<b>437,172</b>	<b>119,936</b>	<b>95,472</b>	<b>167,100</b>	2,588,706
<b>Panel B: % to Column Total</b>							
Below 5,000	<b>10.5%</b>	0.4%	0.1%	0.2%	0.3%	0.0%	5.7%
5,000+ to 10,000	<b>11.5%</b>	<b>10.6%</b>	0.1%	0.2%	0.2%	0.1%	7.8%
10,000+ to 20,000	22.8%	<b>14.4%</b>	<b>18.1%</b>	0.4%	0.3%	0.1%	17.4%
20,000+ to 30,000	15.0%	14.8%	<b>13.9%</b>	<b>32.6%</b>	0.2%	0.1%	14.1%
30,000+ to 50,000	18.3%	21.5%	18.5%	<b>16.5%</b>	<b>38.7%</b>	0.1%	18.3%
50,000+ to 100,000	13.5%	18.6%	22.2%	15.5%	<b>18.6%</b>	<b>53.6%</b>	18.6%
100,000+ to 200,000	5.5%	10.7%	12.1%	17.3%	17.4%	<b>15.0%</b>	9.0%
200,000+ to 500,000	2.2%	6.6%	9.4%	11.4%	10.9%	15.8%	5.7%
500,000+ to 1,000,000	0.5%	1.7%	3.3%	3.9%	6.7%	8.7%	2.1%
Above 1,000,000	0.2%	0.7%	2.4%	1.9%	6.7%	6.5%	1.3%
<b>Column Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	100.0%

Table A3 - Key Indicators for Companies with Board Lot Value over HK\$ 15,000 (August 2001)

Stock Code	Company Name	Average Transaction Price (HK\$)	Board Lot (Number of Shares)	Average Board Lot Value (HK\$)	Number of Deals (daily average)		Transaction Value (HK\$ billion, annualised)		Market Cap (HK\$ billion)		Ratio of Transaction Value to Market Cap
					Number	% of Total 712 Companies	Value	% of Total 712 Companies	Value	% of Total 712 Companies	
1	Cheung Kong (Holdings) Ltd.	71.72	1,000	71,720	2,343	2.0%	204.6	7.1%	166.1	4.1%	123.2%
13	Hutchison Whampoa Ltd.	68.69	1,000	68,690	3,623	3.2%	241.9	8.4%	292.9	7.2%	82.6%
16	Sun Hung Kai Properties Ltd.	66.28	1,000	66,280	1,300	1.1%	106.3	3.7%	159.1	3.9%	66.8%
53	Guoco Group Ltd.	44.38	1,000	44,380	178	0.2%	9.3	0.3%	19.0	0.5%	49.1%
5	HSBC Holdings plc	92.06	400	36,824	2,987	2.6%	294.2	10.2%	859.3	21.1%	34.2%
12	Henderson Land Development Co. Ltd.	34.67	1,000	34,670	858	0.7%	35.4	1.2%	59.7	1.5%	59.4%
511	Television Broadcasts Ltd.	29.49	1,000	29,490	423	0.4%	12.0	0.4%	12.9	0.3%	93.2%
220	Oxford Properties & Finance Ltd.	14.67	2,000	29,340	100.0%	0.1	0.0%	1.0	0.0%	8.2%	
945	Manulife Financial Corporation	232.85	100	23,285	167	0.1%	4.1	0.1%	112.3	2.8%	3.7%
388	Hong Kong Exchanges and Clearing Ltd.	11.15	2,000	22,300	783	0.7%	24.4	0.8%	11.6	0.3%	210.2%
494	Li & Fung Ltd.	10.92	2,000	21,840	761	0.7%	36.0	1.2%	31.4	0.8%	114.7%
762	China Unicom Ltd.	10.79	2,000	21,580	3,529	3.1%	129.1	4.5%	135.5	3.3%	95.3%
291	China Resources Enterprise, Ltd.	10.48	2,000	20,960	930	0.8%	24.8	0.9%	21.1	0.5%	117.4%
19	Swire Pacific Ltd. 'A'	39.69	500	19,845	736	0.6%	32.2	1.1%	37.3	0.9%	86.3%
267	CITIC Pacific Ltd.	18.51	1,000	18,510	2,030	1.8%	39.3	1.4%	40.6	1.0%	96.7%
330	Esprit Holdings Ltd.	8.89	2,000	17,780	113	0.1%	3.5	0.1%	10.2	0.2%	34.4%
4	Wharf (Holdings) Ltd., The	16.55	1,000	16,550	707	0.6%	18.6	0.6%	40.5	1.0%	46.0%
392	Beijing Enterprises Holdings Ltd.	8.23	2,000	16,460	367	0.3%	6.7	0.2%	5.1	0.1%	129.9%
2	CLP Holdings Ltd.	32.27	500	16,135	732	0.6%	28.9	1.0%	80.6	2.0%	35.9%
983	Shui On Construction and Materials Ltd.	8.06	2,000	16,120	178	0.2%	1.8	0.1%	2.1	0.1%	84.5%
440	Dah Sing Financial Holdings Ltd.	38.91	400	15,564	204	0.2%	4.4	0.2%	9.6	0.2%	46.1%
186	Grande Holdings Ltd., The	7.58	2,000	15,160	3	0.0%	0.0	0.0%	3.0	0.1%	0.7%
	<b>Total</b>				<b>22,753</b>	<b>19.9%</b>	<b>1,253.3</b>	<b>43.4%</b>	<b>2,098.2</b>	<b>51.6%</b>	