Economic Value Added in the Hong Kong Listed Companies: A Preliminary Evidence

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Abstract: Many advocates claimed that Economic Value Added (EVA) is a key performance index that motivates companies to find ways to increase efficiency of capital utilization and consequently produce a superior operating performance, and therefore should in theory reflect a stock's intrinsic value. Many past studies, however, suggest that EVA does not dominate traditional accounting earnings with stock returns and firm values. With few exceptions, these studies have concentrated on the relationship between EVA and stock returns as well as firm values in the US. This paper investigates related issues by examining the information contents of EVA and other competing measures for firms listed in Hong Kong.

Keywords: *EVA; Valuation; Corporate governance*

1. INTRODUCTION

Financial theorists have long argued that the objective in managerial decision-making should be to maximize firm value. Managers and practitioners have often criticized them for being too single minded about value maximization and for not considering the broader aspects of corporate strategy or the interests of other stakeholders. In the last decade, however, managers seem to have come around to the view that value maximization should be, if not the only, at least the primary objective for their firms. This turn-around can be partly attributed to the frustration that many of them have felt with strategic consulting and its failures, or partly to an increase in their ownership of equity in the firms that they manage.

The recent Asian financial crisis has exposed the weakness of corporate governance in Hong Kong to certain extent. A number of governance structures, generally defined as institutional arrangements and mechanisms through which outside investors in the firm control the insiders of the firm to ensure returns on their investment, while mandatory in more developed economies, are only voluntary in Hong Kong. These features should provide an alternative setting for our investigation. Furthermore, the stock markets in both Hong Kong appear to be quite volatile, and this casts some doubts of using stock returns as the measure of value added. Economic Value Added (EVA) and other related metrics may provide an alternative choice of measuring the value created, and indeed some of these measures have gained supports from the practitioners.

In this study, the data on EVA and related metrics for firms in Hong Kong are first compiled, which will be the first step in valuing these firms using measures other than traditional variables. The EVA measures have been argued to be useful for internal incentive purposes in a more developed economy, so it is of interest to see their use in Hong Kong. The information contents of these measures are then investigated by examining their association with firm values in such an alternative setting. As the economies are emerging significantly over the years, Hong Kong should provide a rich setting to study these issues. Therefore, this study should shed light on how to measure shareholder value in an environment rather different from the other developed markets, thereby contribute to the academic literature as well as provide a basis for policy implications.

The progression of the paper is as follows: The data and methodology are described in section 2, with the empirical results presented in section 3, followed by the concluding remarks.

2. DATA AND METHODOLOGY

2.1. Data

This study investigates all the firms listed in the Stock Exchange of Hong Kong (SEHK). Specifically, the data used in this study are extracted from the Pacific-Basin Capital Markets Database (PACAP). The PACAP database is developed by the Sandra Ann Morsilli Pacific-Basin Capital Markets Research Center at the University of Rhode Island, which consists of historical capital markets data for 8 economies in the Pacific-Basin region including Hong Kong.

2.2. Economic Value Added (EVA)

Economic Value Added (EVA) is a variation of the residual income (RI) concept, and is defined as the difference between a company's net operating income after taxes (NOPAT) and its capital charge — the amount of capital times the cost of capital. Stewart (1991) suggests that EVA is a fundamental measure of corporate performance that shows how efficient management is in turning investors' capital into profits, i.e., creating wealth. EVA exemplifies the axiom that it is the return in excess of the cost of capital, the cost or return required by investors on their provided funds used to create value:

EVA = (Rate of Return – Cost of Capital) × Total Capital

= NOPAT – (Cost of Capital × Total Capital)

where NOPAT is the profit derived from operations after taxes but before financing costs and non-cash book-keeping entries; Total Capital is cash invested net of depreciation, usually calculated as the sum of interest-bearing debt and equity or as the sum of net assets less interest-bearing current liabilities as defined in Uyemura (1997); and Cost of Capital is the weighted average cost of total capital.

As this study is concerned about firms in Hong Kong, the computation of the relevant measures will be similar to that of Hu and Lu (2000). Due to the availability of the data, however, there are also differences as several items are not available in the PACAP database. These items include "Goodwill", "Bad Debts + Provision" and "Long-Term Loans Due in Short Term". Also, the item "Research and Development Investment" does not seem to have a suitable match. As these items are not very significance according to the results from Weaver (2001), the results in this study should not be affected materially when these items are discarded.

2.3. Cost of Capital

An important determinant of the Economic Value Added (EVA) is the cost of capital. Litzenberger and Rao (1972) had stated that CAPM provided insights into the relationship between industry cost of capital and risk. So we used the conventional Capital Asset Pricing Model (CAPM) to calculate a proxy for the opportunity cost of capital for each firm in a particular industry. The CAPM has the form:

$$E(r_j) = r_f + \beta_j (E(r_m) - r_f),$$

where $E(r_j)$ = expected rate of return of the industry j, r_f = risk-free rate of return, r_m = market rate of return, and β_j = estimated beta for the industry j. The CAPM is usually used to estimate the expected return of individual stocks, and thus the cost of equity of a single firm. In order to reduce the sampling errors resulting from a growing equity market such as Hong Kong, we shall estimate the cost of capital for each firm on the industry basis. Since we are grouping the firms into the industries and use the same cost of capital for firms in the same industry, the effect of debt would average out. So it would be reasonable to use the return calculated by CAPM as a proxy of cost of capital of the industry.

2.4. Hypothesis of Interest

While an examination of the EVA is important on its own, it is also of interest to examine if these performance measures carry more information content than that of traditional measures in markets such as Hong Kong. Specifically, this study will examine the hypothesis that EVA is a better measure of firm performance than other measures such as earnings through the following regression model:

$$MV = \alpha + \beta_1 EBEI + \beta_2 CFO + \beta_3 EVA + \varepsilon, \quad (1)$$

where MV is the market value of the company, $EBEI$ is the earning before extraordinary items of the company, CFO is the cash flow from operating of the company, EVA is the economic value added of the company. The reason of choosing $EBEI$ and CFO to be included in the regression model is that they are the most common traditional accounting performance measures. This set of tests indicates whether these predictors of firm value provide value-relevant information. Rejection of the hypothesis is viewed as evidence of no or insignificant information content in the predictors.

3. EMPIRICAL RESULTS

3.1. Cost of Capital

As discussed above, we use the CAPM to estimate the cost of capital of each firm on an industry basis. We aggregate individual firms listed on the SEHK into 7 industries using the classification scheme in the PACAP, and the value-weighted market returns with cash dividend reinvested are used as the market index. Monthly observations from the PACAP database are used to estimate the relevant betas for firms in Hong Kong. As the data in PACAP are only available up to 1999, we used data from January 1990 to December 1999, i.e., around 119 observations for each industry.

After estimating the beta for each industry, we can now compute the industry-wide cost of capital. Note that, however, the stock market in Hong Kong appears to be quite volatile and has experienced some very bad times in which even the annual market returns were negative in value. As it would be unreasonable for investors to expect negative returns for their investments, these observations should be a result of large (negative) shocks on the expected returns. Since we need the expected return as a proxy for the opportunity cost of capital over the sample period, we shall use the average annual market risk premium between 1990 and 1999 for Hong Kong as the market risk premium for every year in the sample. The estimates of the market risk premium, as well as the beta and the cost of capital for each industry are shown in Table 1.

Table 1: Estimates of the beta and the cost of capital for different industries in Hong Kong (1990–1999)

Industry	Beta	Cost of Capital (%)
Finance	0.9623	28.64
Utilities	0.7059	23.27
Properties	1.3192	36.12
Consolidated Enterprises	1.0561	30.61
Industrials	1.0081	29.60
Hotels	0.9034	27.41
Others	1.2386	34.43
Market Risk Premium (%)	20.96	

Observe that the Properties industry has the largest beta and cost of capital. This may due to the uncertainty in the housing and real estate price over the recent years. Conversely, Utilities industry has the smallest beta and cost of capital. It seems that these industries are less sensitive to market fluctuation.

3.2. EVA in Hong Kong

After the cost of capital has been computed, we can now construct the EVA. We compute the INCAP, NOPAT, and EVA of all listed firms in Hong Kong between 1990 and 1999 on an annual basis. The annual average of these quantities are reported in Table 2.

Observe that the average EVA was negative throughout the whole sample years with relatively volatile fluctuations. One would lead to ask why were the average EVA negative for firms in Hong Kong? The EVA will be negative when the net operating profit after tax is less than the product of invested capital and the cost of capital. It is not entirely unreasonable for a firm to have a negative EVA for a period of time. Pettit (2001) has stated that a company may make a decision or undertakes an investment with negative EVA for strategic move. These strategic holdings or investments are ones currently earning less than their cost of capital (negative EVA) that will earn sufficiently more than their cost of capital (positive EVA) in the future.

Table 2: The average annual INCAP, NOPAT and EVA for firms listed in Hong Kong (in thousands of HKD)

Year	INCAP	NOPAT	EVA
1990	3,563,037	433,296	–703,958
	(9,596,500)	(1,180,761)	(2,041,385)
1991	3,866,916	454,316	–759,505
	(10,583,942)	(1,360,751)	(2,338,351)
1992	4,203,090	478,410	–734,120
	(11,679,880)	(1,376,629)	(2,367,999)
1993	6,163,704	656,266	–1,127,722
	(18,422,649)	(1,981,614)	(4,060,275)
1994	4,999,794	678,966	–865,288
	(17,270,122)	(2,151,690)	(3,775,785)
1995	5,728,116	665,102	–1,146,127
	(20,762,533)	(2,251,383)	(4,924,132)
1996	6,123,494	700,226	–1,203,793
	(20,528,418)	(2,496,985)	(4,454,993)
1997	7,144,552	804,236	–1,408,008
	(23,913,676)	(2,558,827)	(5,253,909)
1998	5,333,349	588,455	–1,056,008
	(21,935,340)	(2,204,867)	(5,056,739)
1999	5,959,362	1,016,155	–819,410
	(23,446,928)	(5,502,636)	(2,830,033)

Note: The standard deviations of INCAP, NOPAT and EVA are reported in parentheses.

However, it seems unlikely that the average EVA of all industries in every year of the sample were negative, or that the industry average EVA in the sample were all negative, only for that simple reason. Some alternative explanations have been provided by Lang and Young (2001a, 2001b, 2001c). They argued that given weak institutions, debt might serve to facilitate, rather than to constrain, managerial expropriated via unfair transactions with related parties. A majority (54.2%) of corporations can access related party

lending in Asia. East Asia's business networks are based on family and long-term associates that permitted complex transactions without a law of contract. Problems arose only when growth proceeded to the point where companies had to seek outside sources of finance to continue their growth. Without institutions to ensure shareholder protection, managers could not be disciplined by the takeover market as in the US.

The East Asian alternative was the formation of extensive corporate pyramids. These permitted successful business families to reach out for external capital, while retaining control of management. Similarly, weak creditor protection prevented arms-length loans. Banks were therefore integrated into the corporate pyramids: related parties could at least be relied upon to repay their loans. These creative ways of tapping wider pools of capital, despite weak capital market institutions, open the door to the expropriation by the controlling shareholder/ manager. Loans were provided by banks low in pyramids, with top managers from the controlling family, despite its low equity stake. Since the family had small equity stake and limited liability in the bank, their collapse would be left intact the family's prior gains from expropriation.

Therefore, it is quite likely that the abilities to expropriate outsiders (include minority share-holders, creditors and others) may have been at least part of the reason for the negative EVA that most Hong Kong firms had experienced. As the companies are listed, they must have reached the point where outside sources of finance are needed. With the motive to protect their family interests and ability to expropriate the outsiders, they may get capital from shareholder and creditors that are outsiders to their family, and invest in projects or subsidiaries that earn accounting profit, but suffer economic loss. That is value destructing, and result in negative EVA.

Also, we can see that the average EVA in Hong Kong were experiencing drop from 1995 to 1997, then began to increase steadily from 1997 to 1999. In our opinion, the Asian Financial Crisis may have raised the awareness of investors and banks to the expropriation game, and made it more difficult for the family-controlled companies to play the expropriation game.

3.3. Testing of the Hypothesis

Even though the EVA has been found to be negative, we can still investigate the information content of such a measure in Hong Kong. Before testing the hypothesis postulated previously, we shall first examine the behavior of the other two measures — earnings before extraordinary items (EBEI) and the cash flow from operating (CFO) — for firms in Hong Kong. Note that the EBEI was calculated by "net income – extraordinary items", and the CFO was calculated by "net income + depreciation + decrease in inventories + increase in account payable + decrease in account receivable + increase in tax payable."

3.3.1. EBEI and CFO in Hong Kong

We compute the EBEI and the CFO for all listed firms in Hong Kong between 1990 and 1999 on an annual basis. The annual average of these quantities are reported in Table 3.

Table 3: The average annual EBEI and CFO for firms listed in Hong Kong (in thousands of HKD)

Year	EBEI	CFO
1990	216,926	191,295
	(617,118)	(776,695)
1991	240,764	235,039
	(691,859)	(1,098,646)
1992	269,068	196,916
	(799,798)	(631,435)
1993	329,188	223,167
	(1,011,185)	(1,069,512)
1994	332,185	282,221
	(1,092,362)	(1,215,417)
1995	296,347	226,024
	(1,193,321)	(1,334,246)
1996	310,838	226,900
	(1,254,596)	(1,213,240)
1997	380,164	219,941
	(1,589,712)	(2,265,238)
1998	102,170	344,297
	(1,225,706)	(1,578,866)
1999	183,194	307,460
	(1,175,274)	(1,545,235)

Note: The standard deviations of EBEI and CFO are reported in parentheses.

From Table 3, we observe that the trends of EBEI and CFO were quite similar, expect for 1997–1998. In that year, EBEI experienced its largest percentage decrease, but CFO experienced its largest percentage decrease. Both EBEI and CFO experienced their largest percentage increase in 1996–1997.

3.3.2. Regression on Market Value

The coefficients estimated from regression (1) will enable us to test the relevant information in respective variable. That is, we can test whether one of the predictors (EBEI, CFO, EVA) of firm value provides value-relevance data beyond that provided by another. The results of the regression are presented in Table 4.

Table 4: Regression of various measures on market value for firms listed in Hong Kong

Industry	EBEI	CFO	EVA
Finance	12.90	4.21	–3.20
	(0.02)	(0.27)	(<0.01)
Utilities	3.10	0.86	–4.20
	(0.11)	(0.61)	(<0.01)
Properties	4.61	–0.53	–2.00
	(<0.01)	(<0.01)	(<0.01)
Consolidated Enterprises	3.95	–0.40	–2.73
	(<0.01)	(<0.01)	(<0.01)
Industrials	3.48	0.51	–1.91
	(<0.01)	(<0.01)	(<0.01)
Hotels	2.79	2.44	–2.27
	(0.01)	(<0.01)	(<0.01)
Others	–0.10	2.36	–2.32
	(0.93)	(<0.01)	(<0.01)

Note: The P-value of Intercept, EBEI, CFO and EVA estimate are reported in parentheses.

From Table 4, we observe that the P-values of *EVA* for all Hong Kong industries were smaller than 0.01. However, the P-values of *EBEI* were less then 0.01 in only three industries (Properties, Consolidated Enterprises and Industrials) making it a less strong value-relevance predictor to firm value as *EVA*. On the other hand, the P-values for *CFO* were statistically significant only in Consolidated Enterprises industry. Again, we observe the relationship between market value and EVA is negative.

As the coefficient of all three predictors was statistically significant for at least one industry in Hong Kong, this suggests that all three predictors do contain at least some information content. This suggests EVA could be a value-relevance predictor to firm value, although the empirical results indicated that the relation of market value and EVA is negative in value. From the above results, it is not surprising that one might ask the following question: Why did the EVA have negative correlation with market value in Hong Kong?

Theoretically, EVA should be much better than conventional measures in explaining the market value of a company. Positive EVA builds up a premium to the market value of equity, since investors pay for the excess return. Negative EVA builds up a discount to the market value of equity. In reality, there are many companies selling below the book value because of insufficient expected return. Young and O'Byrne (2001) stated that a company can increase EVA by achieving (1) increase returns on existing capital, (2) profitable growth, (3) divestment of value-destroying activities, (4) longer periods over which it is expected to earn a returns on net assets greater than the cost of capital, and (5) reductions in the cost of capital. These achievements create value, and should increase the market value of the company as well as increase EVA.

Therefore, EVA should have positive correlation with market value. Our empirical results, however, revealed that all industries in Hong Kong had negative estimated EVA coefficient when regressed on market value. In our opinion, the abilities to expropriate outsiders (include minority share-holders, creditors and others) may have been at least part of the reasons of the negative correlation of EVA and market value in Hong Kong market. As they may be able to get capital from shareholder and creditors that are outsiders to their family, and expand the family business by investing in projects or subsidiaries that earn accounting profit, but suffer economic loss. The market value of the companies would increase as long as the outsiders did not aware of the expropriation, but these actions are value destructing, and result in negative EVA. As a result, the market value may go in opposite direction at the EVA in these cases.

4. CONCLUDING REMARKS

In this study, we found that although the average EBEI and CFO in Hong Kong were positive, the average EVA in Hong Kong was negative. We can also see that some industries (for example, the utilities industry) had high EBEI and CFO, but low (or more negative) EVA. Another interesting finding is that the correlation of the market value and EVA of companies were negative. This is contrary to what we had expected, as we expected that the (estimated) EVA should be positively correlated with the market value of the firm.

It may be argued that the negative EVA and the negative estimated EVA coefficient in Hong Kong might due to the family enterprises, formation of extensive corporate pyramids, and

the abilities to expropriate outsiders. Hong Kong provided some interesting insight to the use of EVA as a performance measures in markets with difference governance mechanism. The results in our study also made us wonder if the negative EVA that had experienced before the Asian financial crisis were indicators of the financial crisis.

Of course, this study is not without its limitations. We had not differentiated firms with different structure of corporate governance. We just implicitly assumed that the main corporate governance structure in Hong Kong is family-control. So we suggest further study in the Hong Kong that focus on the relationship between the structures of corporate governance and the value creation and enhancement measured by EVA and related metrics. We could differentiate the firms by ownership concentration ratio. Then, we can examine effects on a firm's performance of various ownership mix, such as corporation ownership versus individual ownership in Hong Kong.

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