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A DYNAMIC FINANCIAL RATIO ADJUSTMENT MODEL

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ABSTRACT

This paper proposes an alternative model for analyzing the dynamic adjustment process of financial ratios; the model includes a firm's internal effect, industry-wide effect, and strategic management. The model can explain (1) that a firm's financial ratios reflect unexpected changes in the industry, (2) active attempts to achieve the desired target by management, and (3) an individual firm's financial ratio movement. We consider the internal effect of the dynamic adjustment process of financial ratios to an equilibrium state on a firm, and use quarterly data rather than annual data for examining these effects. Empirical findings indicate that the specific effect on the firm indeed improves the explanatory ability of the dynamic adjustment process of financial ratios. Further, optimal target financial ratios may be affected by a firm's internal movement, external shocks, and strategic adjustment by the management.

JEL: C51; G17; M41

KEYWORDS: Financial ratio adjustment, Industry-wide effect, Lev's model

INTRODUCTION

Financial ratios are often used to evaluate a firm's financial performance by investors. Additionally, these ratios are used to measure financial situations of a firm through a comparison of its ratios with others in the same industry sector. Lev (1969) was the first to employ a partial adjustment model for describing the dynamic adjustment process of firm's financial ratios. After Lev's dynamic adjustment model, the following empirical and analytical studies (Frecka and Lee, 1983; and Wu and Ho, 1997) find that firms attempt to adjust their individual values with those of the industries in which they operate, thereby aiming to identify the areas of abnormal performance in their organization. Why must industry averages be the expected targets for financial accounting ratios? This is because investors usually compare economic conditions within the industry. If the extent of earnings of a firm differs considerably from the industry average, investors may regard it as a good indication of the future success of a firm (Kallunki and Martikainen, 1999). Thus, the amount of earnings management of a firm must not substantially deviate from the industry average. Therefore, Wu and Ho (1997) proposed an error correction model that explains the evolution of financial ratios over time. They concluded that there are two main effects can explain financial ratio movements. The first effect is a passive adjustment effect that occurs due to exogenous factors that affect the entire industry in which a firm operates, and the second effect is the active adjustment effect that is caused due to the efforts of the management to achieve the desired target. We further propose an alternative model that includes a firm's internal effect, industry-wide effect, and strategic management for analyzing the dynamic adjustment process of financial ratios. The model helps to explain a firm's internal financial ratio movement that can adjust to the financial ratio short-term equilibrium state for an individual firm.

In this paper, we focus on the Taiwanese notebook PC industry. In the fiscal year 2006, the growth in the shipments of Taiwanese notebook PCs to over 80% of the world market rose to 6.3 billion units. The business models of OEMs (Original Equipment Manufacturers) such as Quanta, Compal, Wistron, and Inventec—the top four Taiwanese notebook PC manufacturers—are completely dependent on orders from international brands; therefore, the proportion of OEM business for the Taiwanese notebook PC industry has remained at approximately 90%. Taiwanese notebook PC makers enjoy certain advantages over their worldwide competitors in terms of product design, manufacturing cost, flexible shipment, and global logistics, which have resulted in the current OEM industry model. Thus, it is important to analyze the financial ratios among these companies.

This article organizes as follows. We start by describing the literature review in Section 2. We then propose a dynamic financial ratio adjustment model in Section 3. After proposing the model, we introduce the data source and have some basic statistics in Section 4. Using the data to examine our model, the major empirical results and comparisons with Wu and Ho (1997) are in Section 5. Finally, we have some conclusions and further research in Section 6.

LITERATURE REVIEW

Lee, C. F., Finnerty J. E., and Wort D. H. (1990) indicated that analysis of ratios could take one of two following methods. First, the analyst can compare the ratios of one firm with those similar firms or with industry averages at a specific time point. This is one type of cross-sectional analysis technique that may indicate the relative financial condition and performance of a firm. The second method of ratio comparison involves the comparison of a present ratio with that same firm's past and expected ratios. This kind of time-series analysis will indicate whether the financial condition has improved or not.

In basic finance and accounting courses, industry norms are generally used to determine whether the magnitude of a firm's financial ratios is acceptable. This can lead to some problems in making comparisons among and drawing conclusions from them. In addition, by making only static, one-ratio-to-another comparisons, we are not taking advantage of all the information they can provide. Thus, a more dynamic analysis can improve our ability to compare companies with one another and to forecast future ratios. Regressing current ratios against past ratios helps one analyze the dynamic nature and the adjustment process of a firm's financial ratio. Lev (1969) first used the concept of the partial-adjustment model to define a dynamic financial-ratio adjustment process as:

$$Y_{j,t} = Y_{j,t-1} + \delta_j(Y_{j,t}^* - Y_{j,t-1}), \quad (1)$$

where $0 \leq \delta_j \leq 1$, δ_j is a partial adjustment coefficient, $Y_{j,t}$ equals firm's j -th financial ratio period t and $Y_{j,t}^*$ is firm's j -th financial ratio target in period t . This model is used in a wide variety of empirical applications of the dynamic properties of financial analysis and forecasting, such as the investment, financing, and dividend decisions, and forecasting. A generalization of Lev's (1969) partial adjustment model is the short-run dynamics of firm's financial ratios, which are linked to a rational distributed lag of industry average ratios and can be expressed as follows:

$$(1 - \phi_1 B) \ln y_t = b_t + (\lambda - \theta_1 B) \ln x_{t-1} + u_t, \quad (2)$$

where y_t is a firm's financial status at time t , b_t is the drift term conditional on the information known at time t , ϕ_1 and θ_1 are lagged coefficients, λ is the responsive coefficient to industry shocks, x_{t-1} is the industry average ratio at time $t-1$, u_t is a disturbance term with zero mean and constant variance, and the roots of the first-order polynomials in the lag operator B are outside the unit circle.

Lev's partial adjustment model captures the effect of the response of a firm's financial ratio to unexpected changes in the past industry average ratio triggered by economic shocks. Wu and Ho (1997) generalized model (2) in order to take into account the manager's long-run objective. They impose the condition that the current financial ratio converges to its target, which is expressed as follows:

$$\ln[y_t / x_{t-1}] \rightarrow \beta \text{ as } t \rightarrow \infty. \quad (3)$$

The value of β could be time varying or dependent on certain stationary variables. However, it is assumed a constant in this paper without a loss of generality.

The long-run equilibrium condition in (3) can be imposed on the short-run dynamics in (2), thereby yielding the following relationship:

$$\ln(y_{t+1}/y_t) = g_t + \lambda[\ln(x_t/x_{t-1}) - k_{t-1}] + \gamma[\beta - \ln(y_t/x_{t-1})] + u_{t+1}, \quad (4)$$

where g_t is the expected logarithmic change in a ratio at time t , k_{t-1} is the expected logarithmic change in industry average ratio at time $t-1$, β is the long-run steady-state target ratio, γ is the coefficient associated with the error-correction component that drags a current financial ratio toward the long-run steady-state target ratio and u_{t+1} equals white noise.

THE FINANCIAL RATIO MODEL

Though the model (4) is embedded in the short-run financial ratio dynamics, however, it does not consider the distributions of the firm-specific effect. Kallunki and Martikainen (1999) concluded that accounting earnings are managed for the purposed of attaining a firm-specific target. If a firm reports a consistent increase in earnings year after year, shareholders may treat this behavior as a signal of trouble in the business operations of the firm. Following Wu and Ho (1997), we can postulate that a firm's financial ratios are related to their industry averages. The changes in industry can either be permanent or merely transitory fluctuations. A firm's financial ratio adjustment toward the industry mean would depend on the manager's assessment of the persistence of the current change in the industry mean. Excessive deviation of a firm's ratio from the industry mean is considered to be undesirable. Akin to previous studies on financial ratios, we assume that a manager can either manipulate accounting figures or include desired ratios in the firm's budgets and then control business operations in order to achieve the desired ratio levels. Our main purpose is to determine the general tendency of a firm's financial ratios. We propose a firm's internal movement in (5), which represents the changes in the firm's financial ratio in previous year, as follows:

$$\ln(y_{t+1}/y_t) = g_t + \lambda[\ln(x_t/x_{t-1}) - k_{t-1}] + \gamma[\beta - \ln(y_t/x_{t-1})] + \delta \ln(y_t/y_{t-1}) + u_{t+1}. \quad (5)$$

The rationale of adding a firm's internal movement is that the existence of expectation adjustment lag must be confirmed, which has been considered in Lee and Wu (1988). For the purpose of convenience in estimation of the parameters, model (5) can be rearranged and transformed as

$$\ln(y_{t+1}/y_t) = \lambda + \alpha \ln(x_t/x_{t-1}) + \beta \ln(y_t/x_{t-1}) + \gamma \ln(y_t/y_{t-1}) + u_{t+1}. \quad (6)$$

We can use regression analysis to estimate the parameters. The model offers several advantages over previous studies. First, the desired target ratio is a latent variable that cannot be observed but need not be specified. This model can avoid the problem of estimating the unobserved target ratio as done in previous studies (e.g., Lev, 1969; Frecka and Lee, 1983). Second, the model considers the economic equilibrium relationship. Financial ratios can fluctuate extensively; however, economics force will push them back to the equilibrium state. Last, our model not only takes into account the external shocks to financial ratios but also the internal movements that are caused by a firm's growth. In brief, our model is different from Lev's partial adjustment on account of three factors—passive industry-wide effect, active management to attain equilibrium, and firm's internal growth movements.

DATA

The data for this study was obtained from the quarterly Taiwan Econometric Journal (TEJ) report for the period 1990–2008. Six financial ratios, as given in Lev (1969), Frecka and Lee, (1983) and Wu and Ho,

(1997) are constructed: current, quick, equity to total debt, sales to inventory, sales to total assets, and net operating income to total assets ratios; these are presented in Table 1. The right panel indicates the definition of these financial ratios. We group these ratios into five categories—short-term liquidity, long-term solvency, short-term capital turnover, long-term capital turnover, and return on investment ratios. The twelve companies under analysis are Foxconn, Compal, ECS, Inventec, Clevo, Twinhead, Gigabyte, MSI, Quanta, Mitac, Compeq, and Wistron, all of which belong to the Taiwanese notebook PC OEM industry during the period. The summary statistics are presented in Table 2. Industry averages compute using arithmetic means as a proxy for the target ratio.

Table 1: Selected Financial Ratio and Definitions

Category	Ratio Selected	Definition
Short-term liquidity ratios	Current ratio	Current assets/current liabilities
	Quick ratio	Current assets less inventory/current liabilities
Long-term solvency ratios	Equity to total debt ratio	Equity/total debt
Short-term capital turnover ratios	Sales to inventory ratio	Sales/inventory
Long-term capital turnover ratios	Sales to total assets ratio	Sales/total assets
Return on investment ratios	NOI (Net Operating Income) to total assets ratio	NOI/total assets

Liquidity ratios are calculated from information obtained from the balance sheet of the companies; these ratios measure the relative strength of a firm's financial position. Crudely interpreted, these are coverage ratios that indicate a firm's ability to meet short-term obligations. The current ratio is the most popular of the liquidity ratios because it is easy to calculate and possesses intuitive appeal. It is also the most broadly defined liquidity ratio, as it does not take into account the differences in relative liquidity among the individual components of current assets. A more specifically defined liquidity ratio is the quick or acid test ratio, which excludes the least liquid portion of current assets—inventories.

The long-term solvency ratio measures a firm's ability to meet fixed obligations of one form or another. The time interest paid, which is earnings before interest and taxes over interest expense, measures a firm's ability to service the interest expense on its outstanding debt. A more broadly defined ratio of this type is the fixed-charge coverage ratio, which includes not only the interest expense but also all other expenses that the firm is obligated to pay by contract.

Short-term and long-term capital turnover ratios measure how efficiently a firm is utilizing its assets. However, caution must be exercised with regard to the interpretation of extreme results in either direction; very high values may indicate possible difficulties in the long term, and very low values may indicate a current problem of not generating sufficient sales or not taking stock of obsolete assets. The reason that high activity may not be good in the long term is that the firm may not be able to adjust to an even higher level of activity and therefore may miss out on a market opportunity. Better analysis and planning can help a firm deal with this problem.

Return on investment ratios indicates the profitability of a firm's operations. It is important to note here that these measures are based on past performance. Generally, profitability ratios are the most volatile because a large number of the variables affecting them are beyond the firm's control. There are three groups of profitability ratios—those measuring margins, those measuring returns, and those measuring the relationship of market values to book or accounting values. Overall, all five different types of ratios (as indicated in Table

1) possess different characteristics stemming from the firm itself and the industry as a whole.

Table 2: Sample Statistics (Sample Period: 1990–2008)

Ratio	Min.	Max.	Mean	Median	Std. Deviation	Skewness	Kurtosis	N
Current ratio	32.6100	728.8000	120.7423	111.4700	58.4119	2.7526	19.1597	644
Quick ratio	61.4800	828.3000	176.4634	159.5000	68.7117	2.7250	14.4637	651
Equity to total debt ratio	0.0346	5.9531	1.3367	1.1466	0.7889	1.8350	5.3037	651
Sales to inventory ratio								
	0.7273	301.8829	13.8905	6.3294	28.0579	5.9367	43.4653	644
Sales to total assets ratio	0.0669	3.9533	1.1837	1.0310	0.7080	0.9142	0.5933	644
NOI to total assets ratio	-0.1442	0.4579	0.0537	0.0370	0.0724	1.7953	5.7813	651

This table shows the eight basic sample statistics of these five financial ratios from 1990 to 2008.

EMPIRICAL RESULTS

The full model in equation (6) and the partial model in equation (4) are first estimated using ordinary least squares regression (OLS). Table 3 summarizes the cross-sectional estimation results of the OLS. The overall results of the full model provide more significant explanatory power as compared with the partial model (4) description in Wu and Ho (1997), as indicated by the value of Adj-R². A majority of the intercept estimates are small and statistically insignificant.

The value of β coefficients indicates that adjustment coefficients are affected by the manager’s decision. All of them are consistent with Wu and Ho (1997) and significant, except the sales to inventory and sales to total assets ratios. Although managers can control business operations to move toward the desired target, certain accounting items are not easy to change. For example, the sales to total assets ratio is affected by long-term factors, such as fixed assets and sales policy, which are more difficult to alter in the short run. Thus, the adjustment of this ratio requires fundamental changes in marketing and replacement of obsolete technology. On the other hand, the net operating income to total asset ratio has a high speed of convergence to the long-run equilibrium state. If a net operating income to total asset ratio were lower than the industry average, it would signify that the firm’s performance is below the industry average, thereby increasing the firm’s borrowing cost. Lev (1969) suggested that the cost of being out of equilibrium reflects the importance of the conformity of a particular ratio with the target.

The value of γ coefficients indicates that adjustment coefficients are affected by a firm’s specific growth. A majority of these coefficients are negative at the 1% significance level except for the sales to total assets ratio in the full model. This value indicates the relationship between the growth in the current state and the subsequent period. It is a short-term adjustment factor for an individual firm.

Table 3: Full model vs. Wu and Ho (1997) (Sample Period: 1990–2008)

I : Full model: $\ln(y_{t+1}/y_t) = \lambda + \alpha \ln(x_t/x_{t-1}) + \beta \ln(y_t/x_{t-1}) + \gamma \ln(y_t/y_{t-1}) + u_{t+1}$

II : Wu and Ho (1997): $\ln(y_{t+1}/y_t) = \lambda + \alpha \ln(x_t/x_{t-1}) + \beta \ln(y_t/x_{t-1}) + u_{t+1}$

	Model	λ	α	β	γ	F value	Adj-R ²
Current ratio	I	-0.0025 (0.7402)	0.0480 (0.5518)	-0.1379 (<.0001)	-0.1578 (0.0002)	22.0100***	0.0915
	II	-0.0040 (0.5975)	-0.0370 (0.636)	-0.1673 (<.0001)		25.6400***	0.0730
Quick ratio	I	-0.0012 (0.9071)	0.2165 (0.0101)	-0.1587 (<.0001)	-0.1847 (<.0001)	24.7100***	0.1031
	II	-0.0043 (0.6784)	0.1080 (0.1837)	-0.1965 (<.0001)		27.1000***	0.0778
Equity to total debt ratio	I	-0.0035 (0.7668)	0.0185 (0.8376)	-0.1255 (<.0001)	-0.0752 (0.0706)	15.6200***	0.0655
	II	-0.0052 (0.6613)	-0.0252 (0.7721)	-0.1350 (<.0001)		21.7100***	0.0621
Sales to inventory ratio	I	0.0251 (0.4499)	-0.0289 (0.8016)	-0.0267 (0.4955)	-0.3545 (0.0015)	40.9500***	0.1622
	II	0.0210 (0.5309)	-0.3518 (<.0001)	-0.0583 (0.1271)		55.5400***	0.1498
Sales to total assets ratio	I	-0.0099 (0.7477)	-0.2703 (0.1086)	-0.1043 (0.1941)	-0.0354 (0.8302)	39.2800***	0.1565
	II	-0.0101 (0.7406)	-0.3012 (0.0005)	-0.1088 (0.16)		58.9900***	0.1578
NOI to total assets ratio	I	-0.0608 (0.3173)	0.0975 (0.4641)	-0.2529 (0.006)	-0.2448 (0.024)	14.5900***	0.1715
	II	-0.0625 (0.3091)	-0.0530 (0.6499)	-0.3421 (<.0001)		18.9000***	0.1537

*This table shows the regression results of the full model and Wu and Ho's partial model (1997). y_t is the firm's financial ratio in period t . x_t is the average ratio of the industry in which the firm is classified in period t . p -values are given in parentheses. The *, ** and *** indicate significance at the 10, 5 and 1 percent levels respectively*

Table 4: Estimates of Pooling Regressions (Sample Period: 1990–2008)

$$\text{A: } \ln(y_{t+1} / y_t) = \lambda + \alpha \ln(x_t / x_{t-1}) + u_{t+1}$$

$$\text{B: } \ln(y_{t+1} / y_t) = \lambda + \beta \ln(y_t / x_{t-1}) + u_{t+1}$$

$$\text{C: } \ln(y_{t+1} / y_t) = \lambda + \gamma \ln(y_t / y_{t-1}) + u_{t+1}$$

	Model	λ	α	β	γ	F value	Adj-R ²
Current ratio	A	0.0035 (0.6485)	-0.1897 (0.0143)			6.0400	0.0080
	B	-0.0042 (0.5762)		-0.1708 (<.0001)		51.1300***	0.0741
	C	0.0038 (0.62)			-0.2324 (<.0001)	36.2200***	0.0533
	A	0.0094 (0.377)	-0.0749 (0.3518)			0.8700	0.0002
	B	-0.0029 (0.7829)		-0.1855 (<.0001)		52.3700***	0.0766
	C	0.0108 (0.297)			-0.2371 (<.0001)	37.5700***	0.0558
Quick ratio	A	0.0121 (0.3097)	-0.1429 (0.1037)			2.6500	0.0026
	B	-0.0055 (0.6406)		-0.1363 (<.0001)		43.3900***	0.0634
	C	0.0127 (0.2833)			-0.1399 (0.0004)	12.7100***	0.0184

This table shows the regression results of a firm's ratio against each of the independent variables. y_t is the firm's financial ratio in period t . x_t is the average ratio of the industry in which the firm is classified in period t . p -value is given in parentheses. The *, ** and *** indicate significance at the 10, 5 and 1 percent levels respectively.

The highest absolute value is the coefficient of sales to inventory ratio. If a firm has a lower sale to inventory ratio in this period, the cost of capital would be higher in the next period. Investors would believe that the firm's benefit in the next period benefit would be reduced. Hence, a firm adjusts its sales to inventory ratio depending on the previous ratio. The lowest is the coefficient of sales to total assets ratio. This ratio is also difficult to alter in the short run.

Further, we run the regression of a firm's ratio against each of the independent variables. These regressions are presented in Table 4. The results are consistent with the contention that ratio movements are directed toward the long-run equilibrium state. The results reveal that when ratios are regressed against $\ln(x_t / x_{t-1})$, the Adj-R² is small, thereby indicating that a small proportion of ratio variation can be explained by the change in industry ratio, which is similar to the results obtained in Wu and Ho (1997).

Table 4. (continued)

Sales to inventory ratio	Model	λ	α	β	γ	F value	Adj-R ²
	A	0.0393 (0.2088)	-0.4090 ($<.0001$)			108.5200***	0.1480
	B	-0.0389 (0.2414)		-0.2292 ($<.0001$)		64.7100***	0.0933
	C	0.0326 (0.293)			-0.4056 ($<.0001$)	122.5700***	0.1642
Sales to total assets ratio	A	-0.0028 (0.9263)	-0.4104 ($<.0001$)			115.8300***	0.1565
	B	-0.0261 (0.3925)		-0.3507 ($<.0001$)		103.9700***	0.1426
	C	-0.0031 (0.9183)			-0.3917 ($<.0001$)	111.7700***	0.1518
NOI to total assets ratio	A	-0.0467 (0.4638)	-0.3846 ($<.0001$)			19.2500***	0.0848
	B	-0.0629 (0.3053)		-0.3681 ($<.0001$)		37.7400***	0.1572
	C	-0.0502 (0.4145)			-0.3869 ($<.0001$)	35.0000***	0.1472

When a firm's ratios are regressed against $\ln(y_t/x_{t-1})$ or $\ln(y_t/y_{t-1})$, the Adj-R² becomes much higher. The results also indicate that the explanatory power of $\ln(y_t/y_{t-1})$ is not less than $\ln(y_t/x_{t-1})$. The financial ratios of the next period are indeed affected by a firm's previous specific growth rate. If the absolute value of the regression coefficient is higher, then the sensitivity of the independent variable is higher. Thus, the most sensitive financial ratios are current and quick ratios. They reflect short-term behavior characteristics in the adjustment process toward the equilibrium state.

In order to provide the forecasting ability of the full model, which we proposed, the average mean square errors for the full and partial models, which are equal to those of Wu and Ho's model, were calculated and compared as shown in Table 5. Using $\ln(x_t/x_{t-1})$, $\ln(y_t/x_{t-1})$, $\ln(y_t/y_{t-1})$ and the parameters estimated from the full model, the estimates of future financial ratio could obtain from models (4) and (6). The prediction error was calculated as the difference between the actual and predicted values. Table 5 summarizes the mean and standard deviation of the mean square errors. As indicated, the full model produces smaller percentage and mean square errors than the partial model.

Table 5: Summary Prediction of Mean Square Errors (Sample Period: 1990–2008)

	Full Model		Partial Model	
	Mean	Std. Deviation	Mean	Std. Deviation
Current ratio	0.0345	0.1279	0.0352	0.1444
Quick ratio	0.0622	0.2314	0.0640	0.2713
Equity to total debt ratio	0.0827	0.2446	0.0831	0.2574
Sales to inventory ratio	0.5905	0.7069	0.6002	0.7208
Sales to total assets ratio	0.5611	0.7093	0.5611	0.7107
NOI to total assets ratio	0.7100	1.1955	0.7289	1.2735

The predicted errors are estimated as follows:

(i) For the full model, $e_{t+1} = \ln(y_{t+1} / y_{t-1}) - \hat{\lambda} - \hat{\alpha} \ln(x_t / x_{t-1}) - \hat{\beta} \ln(y_t / x_{t-1}) - \hat{\gamma} \ln(y_t / y_{t-1})$.

(ii) For the partial model, $e_{t+1} = \ln(y_{t+1} / y_{t-1}) - \hat{\lambda} - \hat{\alpha} \ln(x_t / x_{t-1}) - \hat{\beta} \ln(y_t / x_{t-1})$.

All remaining variables are defined in Table 3.

CONCLUSION

This paper proposes an alternative model that includes a firm’s internal effect, industry-wide effect, and strategic management for analyzing the dynamic adjustment process of financial ratios. The model considers a firm’s internal financial ratio movement that can adjust to the financial ratio short-term equilibrium state for an individual firm. All the companies in the Taiwanese notebook PC industry are included in our sample. The quarterly data was obtained from TEJ for the period 1990–2008. Empirical findings indicate that the firm’s internal movements indeed affect and improve the existing explanatory ability for the dynamic adjustment process of financial ratios.

The further research can be considered the dynamic financial ratio adjustment process in different industries. We examine three effects, and try to find out which of them is important in the adjustment processes in different industries. We can also develop the forecasting model in determining the target financial ratios based on the historical and present accounting information.

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STOCK MARKET VOLATILITY: A COMPARISON OF COMPUTER AND CELLULAR HARDWARE COMPANIES

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ABSTRACT

Stock market volatility has been omnipresent in the information technology sector. This manuscript compares the stock performance of computer and cellular hardware companies across six different twenty-month periods between the years 1996-2006. The focus periods include the browser era, the Y2K era, the post-Y2K era, the post-9/11 era, the outsourcing era and the mobile/wireless era. The lowest stock market returns are in the Y2K or post-9/11 eras for all eight firms. The highest stock market returns for the eight companies in the study focus on four different eras. The results imply that while computer and cellular hardware companies have a tendency to decline in price in a down market, positive return periods in a bull market are not highly correlated within the industry.

JEL: D0; G1; L8

KEYWORDS: Abnormal Stock Returns, Cellular Hardware, Computer Hardware, Stock Market

INTRODUCTION

The information technology sector has transformed the economy and changed the basis of competition (Sampler, 1998). Information technology boosts the efficiency of the decision-making process and is perceived by many executives as an integral part of their business strategy (Molloy and Schwenk, 1995; Bartholomew, 1998). Investors have struggled to comprehend the potential and the limitations of information technology companies as the industry has continued to evolve over time. Not surprisingly, the volatility of stock prices for information technology firms has been extreme as many companies struggle to survive a couple of years after reaching a peak stock valuation. On March 10, 2000 the NASDAQ composite peaked at an intra-day high of 5,132 and declining to half of its value within a year before finding a bear market bottom on October 10, 2002 with an intra-day low of 1,108. The excessive rise and fall of information technology companies offers a unique opportunity to evaluate industry nuances associated with bear and bull markets.

The purpose of this research is to compare the stock market performance of multiple computer and cellular hardware companies across multiple information technology eras. The six period classifications are the browser era, Y2K era, post-Y2K era, post-9/11 era, outsourcing era, and mobile/wireless era. Apple, Dell, Ericsson, Hewlett-Packard, Nokia, Motorola, Qualcomm, and Sony are the eight computer and cellular hardware companies included in the study. The organization of this manuscript is into five sections. First, the related literature on financial performance of information technology companies is discussed. The next section offers background information relating to the six information technology eras applied to this study, the computer and cellular hardware industry, and the eight specific companies that are the focus of this study. The third section presents data and methodology. The fourth section puts forth results from the application of a nonparametric technique in order to compare stock market returns across different information technology eras for the eight companies. The final section offers concluding comments.

REVIEW OF THE LITERATURE

Academic research identifying structural economic changes that influence stock prices mostly focus on major crashes in the history of financial markets (Higgins & Osler, 1997; Allen & Gale, 2000; Cocca, 2005). Although a relatively new topic in for the information technology sector, there are numerous in finance theory that focus on the development of speculative bubbles and stock market volatility (Camerer, 1989; Bulow & Klemperer, 1994; Allen & Gale, 2000). Stock market volatility is explained by various approaches, which differ in essence according to assumptions made with regard to market efficiency (Sornette & Malevergne, 2001). Stock market performance of information technology companies reveals the sector has greater volatility than most other economic sectors (Demers & Lev, 2001; Ofek & Richardson, 2003; Kamssu, Reithel, & Ziegelmayr, 2003).

Cocca (2005) puts forth one of the few studies exploring potential reasons for the volatility of the stock market of information technology companies. The study uses a broad media database to analyze the informational and media environment surrounding the market highs for technology stocks and explores potential trigger events that could cause an Internet bubble to burst. Two key informational event triggers are public awareness of the human genome research results and the publication of a study by Barron's magazine about Internet companies' burn rates. Cocca (2005) concludes diffusion data of the informational events show a long-term impact of the Barron's study on media, financial analyst and consequently investor focus on attention.

Researchers are becoming more and more interested in studies relating IT investment and firm performance (Im, Dow, & Grover, 2001). The studies have produced a wide range of performance results that are negative or not conclusive (Tam, 1998), mixed (Avison, Eardley, & Powell, 1998; Bleiweiss, 1998; Ranganathan & Samarah, 2001), or positive a positive and significant relationship between IT investment and firm financial performance (Im, Dow, & Grover, 2001). Kamssu, Reithel, & Ziegelmayr (2003) explore the impact of information technology and stock returns. They conclude that Internet-dependent firms have lower excess returns than non-Internet firms do in a booming economy and that Internet stocks trade at relatively higher prices than non-Internet stocks. The explosion of Internet technology and behavior of investors and decision makers toward firms that use the Internet suggest that Internet technology must have an impact on firms' market performance.

Stock performance helps investors gauge how well their managers are handling their money. Several studies have proposed different methods to assess stock performance. Armitage & Jog (1996), Rogerson, (1997), and Clinton & Chen (1998) have used economic value as a measure of performance. The economic value added is obtained by comparing profits with the cost of capital involved in obtaining these profits (Stephens & Bartunek, 1997). Johnson & Pazderka (1993) and Sundaram, John, and Kose (1996) have employed stock market performance estimates to measure firm performance. Fama & French (1995), Loughran (1997), Zaher (1997) and Ranganathan & Samarah (2001) employ the stock excess returns based on the Capital Asset Pricing Model (CAPM) to measure stock performance. Historically, the stock values of information technology firms bear very little relationship to classical business performance measures (Savitz, 1998), which creates a need for non-traditional proxies and estimation methods.

The statistical methodology incorporated in this study employs a nonparametric approach to comparing the stock market performance of firms across a decade of six different development stages for the information technology industry. The study uses multiple years of data based on the diffusion model hypothesis that the spread of information needs time and stock price momentum reflects gradual diffusion of firm-specific information (Hong & Zhu, 2006). There is no research focusing on stock market volatility of computer and cellular hardware companies.

BACKGROUND INFORMATION

Between 1996 and 2006, several major events in the field of information technology made a lasting impact on many businesses and consumers. Six implicit periods are identified for the purposes of this study. Although somewhat arbitrary, the six periods are placed in twenty-month segments in an effort to capture stock market returns in a broad representative timeframe. The six period classifications are the browser era, Y2K era, post-Y2K era, post-9/11 era, outsourcing era, and mobile/wireless era.

The browser era is defined in the study as the 20-month period of August 1996 through March 1998. The World Wide Web was but a few years old when Mosaic, often considered the first browser, was introduced. The web was massive and complicated. Prior to Mosaic, access to the Internet was largely limited to text, with any graphics displayed in separate windows. Users needed to possess certain technical knowledge and skills to exploit available capabilities and access both the Internet and the web. Mosaic eventually became Netscape. The success of Netscape gained the attention of Microsoft, which developed the Explorer browser. A cluster of related and supporting technologies came together to make the browser a significant innovation breakthrough. The browser era developed with the assistance of computer servers, bandwidth affordability and availability, content providers, and communication links. The browser interface made it easier for users to connect to the web and created a significant critical mass of users.

The use of browsers to connect to the Internet pressured software developers and content providers to adhere to certain accepted specifications and standards. These standards and specifications enhanced the interoperability of web-related products and services. For years, enterprises struggled to find reliable, cost-effective ways to integrate and automate critical processes between different application packages. The web-enabled applications and technology provided the enterprises with the ability to integrate different systems and application types regardless of their platform, operating system, programming language or locations. In essence, the browser was the key that unlocked the World Wide Web to a massive number of users. Netscape was the most used browser to access the web. It allowed millions of users to navigate the web and was the vehicle that linked people and information. The catalyst marked the boom in the Internet. The browser made it possible for millions of users to access the web daily, to send messages and to perform business transactions that would not have been possible without the browser. The browser has changed the way society communicates, created new businesses and contributed to the demise of other businesses.

The Y2K era is defined in the study as the 20-month period of April 1998 through November 1999. In the early days of software development and hardware design, it was common practice to use standard two-digit shorthand to indicate the year. This practice infiltrated many software applications and hardware design schemas. In the early nineties, this became known as the Y2K problem. The Y2K problem implied that some software and hardware would not perform as expected after December 31, 1999. While many were relieved that the catastrophic consequence of Y2K did not materialize, it is clear that this era had profound impact on the amount of expenditures in the field of information technology. This was fueled by the commercialization of the Internet and the need to overhaul information technology infrastructure in preparation to address the potential Y2K problem. The Department of Commerce estimated that there was approximately \$100 billion spent to address the Y2K problem in the United States (Manion & Evan, 2000). The significance of Y2K is more than the expenditure amount, it also provided opportunities to shift to new computing platforms, implementing new approaches to software applications development and highlighted the relevant role of information technology to the overall enterprise's business strategy.

The post-Y2K era is defined in the study as the 20-month period of December 1999 through July 2001. The 2001 year had been a bust with the dot-com implosion and the downturn of the economy. The pre-

Y2K buildup resulted in the post-Y2K bust for many information technology companies. Many companies cut back on information technology expenditures during this era because of the significant expenditures in the preceding era. Despite the bursting of the dot-com bubble, significant advances in information technology continued during this era. The importance of critical infrastructure, the need for compliance with security regulations, the importance of business continuations plans, and data mining/warehousing were four major themes that emerged during this time.

This study defines the post-9/11 era as the 20-month period of August 2001 through March 2003. The event of September 11 accentuated the importance and the vulnerability of information technology in the event of catastrophic attack. It necessitated the need to develop plans to identify its critical infrastructure that are required to maintain minimum operation of the economy and government. The security of critical infrastructure became a vital concern. The perceived increase in risk from growing reliance on technology to support operations and from expanding market bases including growth in the global sector. Security of critical infrastructure and other resources went through extensive change to mitigate the risks. Federal regulations tightened security regulations to include many aspects of business processes and functions. Information technology was targeted as the means in which to be employed to meet the security concern.

The sense of urgency to meet security demands and concerns by the federal government made it easier to fund many of the new research and development activities by businesses. Moreover, many businesses recognized the value of computer security as a large, emerging market. During this time, the importance of data centers redundancy of data and the need for diversity of geographic concentration of information technology resources gained in relevance and significance. In addition, network infrastructure influenced businesses in very profound manner that required continued increase in computing power. Barriers that existed between firms for most of the 20th century gave way to accommodate the need for partnership-based opportunities afforded through e-business. The need for interoperability and flexibility increased during this era to exploit new business opportunities. This created a demand for new system architectures to mitigate the shortcomings of grid computing and client server technologies. The continuous decline in the storage cost of data, the increase of computing power, and the availability of broadband bandwidth reduced the incentive for firms to discard any data. The availability of stored digital data and information presented firms and government agencies with a major challenge to identify ways to make some sense of the huge amount of data. The government's heightened concern with security was instrumental in funding new developments in data mining and contributed to the increase use of business-intelligence software to mine huge amount of stored data.

The outsourcing era is defined in the study as the 20-month period of April 2003 through November 2004. In this era, companies were looking for different measures to cut costs and to improve the balance sheet. Outsourcing and off shoring became prominent business strategies to reduce operational cost, to enhance services, and to improve financial performance. In addition to the economic and market conditions, three Laws influenced this period: Moore's (growing power of computer chips), Metcalfe's (growing network usefulness) and Gilder's (growing communications bandwidth). These laws transformed processes, products and services. Combining the economic conditions and the changes in information technology made it possible to reduce cost but to continue performing certain functions of the business at the same or higher level. Businesses quickly realized the cost advantage of developing and maintaining their software applications in India, China and Eastern Europe. In looking back at that era, it is clear that notwithstanding the challenging economic conditions at the time, it marked the beginning of accepting outsourcing as a cost-reduction strategy. The outsourcing phenomena affected many areas of information technology including software development and programming, technical support, calling centers and customer services.

The mobile/wireless era is defined in the study as the 20-month period of December 2004 to August 2006. The term mobile computing can be described as the use of portable computing devices either in transit or from a remote location. Wireless technology had been around for many years but the industry-transformed society during this era. The mobile computing environment is composed of small devices that permit users to have access to information almost anywhere at any time. The increased access by users to the Internet, the innovation of wireless technology, and the high number of cellular phone services contributed to the growth of mobile computing. Moreover, the dependency and the reliance on laptops and hand-held devices to perform computing functions increased the demand for mobile and wireless products and services.

The computer and cellular hardware industry is dominated by household income and business investment. Sales depend on new products that capture the buyer's attention and warrant the expenditure to upgrade to the new product. The industry has faced declining prices for products with more features than the preceding product. However, firms that create new products with substantial increases in features and functionality are able to increase price. Because of the reliance on new product development, the industry is capital-intensive. However, the high rate of change of innovation eliminates any value to a patent. The lack of value to research and development has created a situation of co- or re-branding. Larger firms market and service the products of smaller firms who use the larger firms' distribution network for sales. As the industry has aged, computers and cell phones have begun to merge into one product. Consumers expect that one device will do multiple things and will be compatible with other devices. Firms have responded by pushing consumers to sign multiple-year contracts. This guarantees a base level of return and creates a situation where the manufacturer has some time to develop the next stage product without losing the customer. The manufacturers' goal is to create the next product while the customer is still under the longer-term contract and allow the customer to upgrade. With the constant upgrades, product life spans have decreased. The industry has had to learn to survive with customers who demand upgrades in quality and functionality but not in price.

Apple Inc. (AAPL) is an American multinational corporation that designs and manufactures consumer electronics and computer software products. The company's best-known hardware products include Macintosh computers, the iPod and the iPhone. Apple software includes the Mac operating system, the iTunes media browser, the iLife suite of multimedia and creativity software, the iWork suite of productivity software, Final Cut Studio, a suite of professional audio and film-industry software products, and Logic Studio, a suite of audio tools. The important events for Apple during the 120-month period of this study include the 1997 return of Steve Jobs to the company, the introduction of the iMac computer, the introduction of the iPod, the opening of a line of Apple retail stores, and the development of the iPhone. The uniqueness of Apple's products has been positive in terms of sales from the design innovations but negative in terms of the incompatibility of its products. Apple held the title of largest computer firm in the early 1980s but it fell out of favor with once the market became dominated by Windows-based computing.

The browser period moved the industry towards the Internet and Apple struggled during this period. It had negative earnings per share for 1996 and 1997 and had to end its dividend in 1997 after reducing it by 75% in 1996. It reduced its workforce by 30% and ended several major research & development projects. The lack of innovation and direction led to the return of Jobs. Jobs worked with Microsoft to create a Mac version of the Office Suite, which reduced the incompatibility problem for Apple. Jobs also removed the cloning license from Power Computing, which had become Apple's chief competitor for Apple software. Apple returned to profitability and saw its net profit margin increase to 7.7% by 2000. In and after the post-Y2K era, Apple experienced declining margins. While it introduced new products such as the iPod at the end of 2001, it was unable to compete with the market that had turned to laptops and a focus on security. This changed with the iPhone and its increased functionality. The iPhone combined the best of Apple's innovative design with a platform that allowed for multiple uses. Learning

the lesson of the Macintosh computer, Apple allowed others to create applications for the iPhone, further increasing its functionality and dominance. Apple's net profit margin soared to over 9% by 2005 from just 1.2% in 2003. The high earnings growth allowed both the P/E ratio to decline to a more normal level and the stock price to double in less than a year.

Dell Inc. (DELL) is a multinational technology corporation based in Round Rock, Texas. The company develops, manufactures, sells and supports personal computers and other computer-related products. Dell grew during the 1980s and 1990s to become the largest seller of PCs and servers. As of 2009, it held the second spot in computer-sales within the industry behind Hewlett-Packard. The company sells personal computers, servers, data storage devices, network switches, software and computer peripherals. Dell also sells HDTVs, cameras, printers, MP3 players and other electronics built by other manufacturers. Dell's business model of built-to-order personal computers allowed the firm to carry lower inventories of supplies and of finished products. This lowered the firm's costs and thus, increased profit margins. Dell's net profit margin grew from 6.8% in 1996 to 8% in 1998 and stayed above 7% through 2000. Dell became synonymous with home computers in the 1990s. However, as desktops evolved into laptops and features became more standard, Dell began to lose its position. Until 2007, Dell had virtually no presence in big box stores, preferring the direct-to-consumer model that had worked so well. This model worked well for business customers who bought many computers and wanted quantity discounts and a standard product. However, home customers liked the ability to see and to touch the computer before buying. Additionally, the home customer did not know about all of the different components and thus, ordering the computer by picking computers was overwhelming. Most home consumers wanted speed and reliability in a lightweight laptop at a low price.

With consumers focused on price more than on features, Dell looked to lower costs. Outsourcing, and in particular, outsourcing of call centers to India lowered costs. Dell's profit margins, which had fallen by over 20% after the tech bubble burst, rebounded to close to 6.8%. In 2008, Dell closed its Texas desktop manufacturing facility. As the industry moved to mobile networking, Dell did not have a major player in the market and its profitability quickly dropped. Dell responded by focusing to two segments, luxury laptops to compete with the high-end Apple laptops, and enterprise hardware such as work and storage systems to compete with IBM. Stock investors have not been supportive of Dell in recent years. It was once one of the four horsemen of the Nasdaq. In 1999, investors were willing to pay a P/E of over 60 for Dell. By 2009, Dell's P/E had fallen to below 20. A decrease of this magnitude is difficult for any company to overcome. Dell's future depends on if it can capture the home computing market once again. While there is no phone or video game machine that goes with the computer, Dell needs a hook into the entertainment side of computers.

Ericsson (ERIC), one of the largest Swedish companies, is a leading provider of telecommunication and data communication systems, and related services covering a range of technologies, including especially mobile networks. Directly and through subsidiaries, it also has a major role in mobile devices and cable TV and IPTV systems. Throughout the 1990s, Ericsson held a 35-40% market share of installed cellular telephone systems. Like most of the telecommunications industry, Ericsson suffered heavy losses after the telecommunications crash in the early 2000s. It was forced to do a 1-for-10 reverse stock split in 2002. On October 1, 2001 the handsets division formed a joint venture with Sony called Sony Ericsson. Ericsson is now a major provider of handset cores and an infrastructure supplier for all major wireless technologies. It has played an important global role in modernizing existing copper lines to offer broadband services and has actively grown a new line of business in the professional services area. Ericsson's focus on the hardware for networks has allowed it to survive the rough times. Its North American business is less than 10% of total sales while Europe is more than 50% of revenues. Ericsson, while considered a quality product, has never been able to make a huge dent in North America because its wireless products are functional but without the features of an iPhone or BlackBerry. In contrast, its network hardware has a strong reputation and is the growth engine for the firm. The firm's net profit

margin bounced from negative values in 2001 and 2002 to over 11% by 2004. Its focus on infrastructure hardware is profitable; the net profit margin has been close to or over 15% since 2005. U.S. investors have not recognized fully the strengths of Ericsson's business. The lack of a consumer presence has resulted in a declining P/E ratio. Ericsson's P/E ratio was close to 90 in 2000 but less than 20 since 2004. It is one of the few technology companies to pay a dividend, which increased yearly since the 2005 reinstatement. Over the entire 120-month period, Ericsson has the lowest total return.

Hewlett-Packard Company (HPQ) is a technology corporation headquartered in Palo Alto, California. HPQ is the largest technology company in the world and operates in nearly every country. Hewlett-Packard specializes in developing and manufacturing computing, storage and networking hardware, software and services. Major product lines include personal computing devices, enterprise servers, related storage devices, as well as a diverse range of printers and other imaging products. Other product lines, including electronic test equipment and systems, medical electronic equipment, solid-state components and instrumentation for chemical analysis became Agilent Technologies in 1999. Hewlett-Packard markets its products to households, small to medium size businesses and enterprises both directly, via online distribution, consumer-electronics and office-supply retailers, software partners and major technology vendors.

The important events for Hewlett-Packard during the 120-month period of this study include the \$8 billion spinoff creating Agilent, the hiring of Carly Fiorina as the first female CEO of a company in the Dow Jones Industrial Average, merger with Compaq and the outsourcing of enterprise support to lower cost workers in other countries. Of the five companies examine, HPQ has the highest correlation in stock price with the Nasdaq index at 0.91. While in all areas of IT, HPQ is almost synonymous with printers. While not a glamorous part of the technology industry, printers are a necessary component, which created a steady increase in earnings and net profit margin over the first two eras. Additionally, steady income in the form of ink purchases helped to provide income. In the post-9/11 era, HPQ lowered price in order to maintain steady sales and market share. Its net profit margin fell by more than 50%. It was during this same time that HPQ acquired Compaq, which evolved into a contentious proxy fight. HPQ's stock price declined. After the departure of Fiorina in early 2005, the new leadership of Mark Hurd refocused the firm on imaging. Printing had been a declining activity as the Internet facilitated document sharing. However, the move to the consumer in the wireless/handheld era created a need for easier imaging products. HPQ responded with docking products and the ability to print quality pictures from a home printer. Earnings and net profit margin increased resulting in the stock price doubling in 2005-06.

Nokia Corporation (NOK) is a Finnish multinational communications corporation with headquarters in Keilaniemi, Espoo, which neighbors Finland's capital city of Helsinki. Nokia is the world's largest manufacturer of mobile telephones: its global device market share was about 38% in Q2 2009, down from 40% in Q2 2008 and up from 37% in Q1 2009. Nokia produces mobile devices for every major market segment and protocol. Nokia offers Internet services that enable people to experience music, maps, media, messaging and games. Nokia's subsidiary, Nokia Siemens Networks, produces telecommunications network equipment, solutions and services. Nokia has sites for research and development, manufacture, and sales in many countries throughout the world. As of December 2008, Nokia had R&D presence in 16 countries. North America is Nokia's smallest market at less than 5% of sales. Nokia's strength lies in its ability to provide niche products around the world. Recognizing the income differences, Nokia's creates different products for lower income countries.

Nokia also demonstrates an ability to adapt to the changing market. As location-based applications have increased for smart phones, Nokia acquired NAVTEQ to improve its navigation features. The technology bubble burst hurt all technology firms, Nokia recovered quickly because of its diversified approach to products and to geography. No one product or place is the dominate revenue producer. Earnings dipped in 2001 but by 2002, Nokia's earnings had surpassed levels of the late 1990s. Earnings dipped again

during the outsourcing era as other firms lowered costs and prices but Nokia maintained prices. While sales have steadily increased, so have costs, lowering the net profit margin. Since 2003, Nokia's net profit has decreased from 13.4% to less than 10%. U.S. stock investors have not punished the firm for this decline. The P/E ratio has fluctuated in the 15 to 16 range over the same period. Stock price increases are a function of earnings growth and not P/E ratio growth. Looking ahead, the industry may be moving to an area of expertise for Nokia. Netbooks and other small computing devices focus on the interplay of portability and wireless computing at an affordable price, which is something Nokia has been providing in the lower income countries through its mobile devices.

Motorola, Inc. (MOT) is an American, multinational, telecommunications company based in Schaumburg, Illinois. It is a manufacturer of wireless telephone handsets, and designs and sells wireless network infrastructure equipment such as cellular transmission base stations and signal amplifiers. Motorola's home and broadcast network products include set-top boxes, digital video recorders, and network equipment used to enable video broadcasting and high-definition television. Its business and government customers consist mainly of wireless voice and broadband systems used to build private networks and public safety communications systems. Motorola is still a major competitor in the wireless handset market at number three in the world. Unfortunately, as the market has fractured under new competition, Motorola's market share has fallen from 22% in 2006 to 8% in 2008. Like all of the technology companies, Motorola rode the wave of the technology boom and bust. Historically, Motorola's business plan has focused on cutting costs and increasing volume.

As some of the firms began to recover, Motorola struggled until they were able to leverage their cost-cutting strategy. This strategy worked well during the outsourcing era and beginning of the wireless era as the firm was able to benefit from lower costs. As cell phones became commonplace, not all customers could afford the higher-end phones. Motorola's products met this market and its net profit margin reflects the strategy. The net profit margin increased from 1.2% in 2002 to 7.9% in 2005. Towards the end of the wireless era, the market moved to products with greater functionality and features. Motorola struggled to increase volume because its products lacked the design innovations of products such as the iPhone. As earnings growth decreased, the stock price fell but not because the P/E decreased. The P/E ratio actually increased, indicating that some investors believe that Motorola can reinvent itself. Motorola has been diversifying its product line into wireless enterprise products and television-on-demand technologies. Additionally, Motorola has been decreasing its shares outstanding, which has also provided the floor for the P/E ratio.

Qualcomm (QCOM) is a wireless telecommunications company, as well as the largest chip supplier in the world, based in San Diego, California. In 1999, Qualcomm sold its base station business to Ericsson, and later, sold its cell phone manufacturing business to Kyocera. In return, the company focused on developing and licensing wireless technologies and selling ASICs that implement them. In 2000, Qualcomm acquired Snaptrack, the inventor of the assisted-GPS system for cell phones. The Snaptrack patents describe how a cell phone acquires a GPS signal rapidly using timing information sent from the base station. This reduces the searching time for location from minutes down to roughly one second. In October 2004, Qualcomm acquired Trigenix Ltd, a mobile software company. After integrating the company, Qualcomm re-branded their interface markup language and its accompanying integrated development environment. In 2006, Qualcomm purchased Flarion Technologies in an effort to capture the Flash-OFDM wireless base station. Qualcomm's focus on research and development means that costs incurred in one time may not create a return for several periods.

What is unique about QCOM is its ability to maintain a higher than industry average net profit margin. When other firms' profitability dropped in 2001, Qualcomm's net profit margin increased. Perhaps the most important determinant for Qualcomm's stock is the P/E ratio. Qualcomm's P/E ratio rose to over 90 in 2000. By 2003, Qualcomm's net profit margin had rebounded to close to its 2000 value but the P/E

ratio had fallen to around 30. The severe drop in the P/E ratio during the post-Y2K and post-9/11 periods explains the drop in the stock price. The loss in confidence in Qualcomm as a growth engine continues even though the firm's net profit margin was above 35% in 2004 and has stayed at such high levels. Additionally, the firm instituted a dividend in 2003 and has steadily increased it since then. Dividends can be sign to investors that the growth potential of the firm is lower but QCOM's margins do not indicate this. As a supplier of components to the major wireless manufacturers, QCOM has been in a unique position of selling components to competitor firms. Patents cover the components. Qualcomm has been involved in several fights with competitors and customers over the patents, which is one reason for the downward pressure on stock price. The sellers of wireless devices have wanted more competition in the components market in order to keep input prices down. Qualcomm has resisted this trend. With the industry moving to one device doing a variety of things for consumers, QCOM has been expanding into new segments such as wireless banking and entertainment software. Qualcomm is positioning itself for the wireless applications era.

Sony Corporation (SNE) is a multinational conglomerate corporation headquartered in Minato, Tokyo, Japan and one of the world's largest media conglomerates. Sony is one of the leading manufacturers of electronics, video, communications, video game consoles and information technology products for the consumer and professional markets. Sony's principal business operations include Sony Corporation (Sony Electronics in the U.S.), Sony Pictures Entertainment, Sony Computer Entertainment, Sony Music Entertainment, Sony Ericsson, and Sony Financial. Sony has approached the computer and cellular industry from the entertainment side. Sony is used to strong competition and a fickle consumer. Through its years in electronics, Sony has built a reputation for quality, which has allowed it to charge above market prices. Each Sony product works seamlessly with other Sony products, which has created a loyal consumer base. When Sony moves into an industry, it looks to gain market share in order to control the direction of the industry. In the computer industry, Sony originally focused on gaming consoles that also played movies and music. Sony sold consumers the device and the content, creating a steady stream of inflows from the sales of one device.

Just as the technology boom was ending, entertainment consoles were converging with the personal computers. Consumers wanted computers to move from business applications to include more entertainment. Additionally, the rise of the Internet created a focus on visualization, in which Sony was already proficient through its gaming consoles and movie business. While Hewlett-Packard and Dell began to alter their focus to businesses, Sony remained in the consumer market, utilizing retail outlets to display its products. Because of its focus on consumers, Sony is more susceptible to changes in consumer spending than the firms that have significant sales to businesses. As consumer spending began to increase after 9/11, Sony's earnings increased but its P/E continued to decrease which created resistance for its stock price. In the outsourcing era, Sony's focus on costs paid off and its net profit margin doubled from 1.2% to 2.4%. However, the low margins mean that Sony has little room for error. While the VAIO laptop increased in popularity and competed with Dell, HPQ, and Apple, stock investors have been reluctant to increase its P/E ratio. In the wireless era, Sony continued its strength in areas such as electronics, gaming consoles and cameras. However, the industry move to cell phones and more interactive devices has introduced new competition for Sony. Sony has netbooks, reading devices, and portable music devices but none have the market dominance required by Sony's volume-based business model. Over the 120-month period, Sony's stock price has the second lowest price appreciation.

The firms competing in the computer and cellular hardware business are all survivors. Many competitors have disappeared, whether through bankruptcy or acquisition. To continue to survive the firms must navigate a highly competitive industry with customers who want more functionality and more features but are resistant to price increases for all items except the newest, trendiest product. Two themes dominate the industry. Value quickly migrates to the blockbuster product and firm. For the other firms, value migrates to the low cost producer.

DATA AND METHODOLOGY

Is there a difference in the stock market performance of computer and cellular hardware companies in the different period classifications? In this section, we compare the stock market returns of computer and cellular hardware companies in six different twenty-month periods between the years 1996 through 2006. Eight different information technology firms specializing in computer or cellular hardware are the focus of this study. The primary data source is the Yahoo! finance website, which offers daily and monthly closing stock prices across multiple years. The six period classifications are the browser era, Y2K era, post-Y2K era, post-9/11 era, outsourcing era, and mobile/wireless era. The statistical methodology incorporates a nonparametric approach to comparing the stock market performance of a company in the six different periods. The Kruskal-Wallis test offers the most powerful test statistic in a completely randomized design without assuming a normal distribution. A traditional event study methodology is not applicable to this specific research design because the research periods require a long time horizon instead of the narrow window associated with an event study. In addition, a nonparametric approach is more efficient given the limitation of defining all six periods in a strict twenty-month period given some eras might be somewhat longer or shorter than the twenty-months.

The Kruskal-Wallis test is sensitive to differences among means in the k populations and is extremely useful when the alternative hypothesis is that the k populations do not have identical means. The null hypothesis is that the k company stock returns in the different periods come from an identical distribution function. For a complete description of the Kruskal-Wallis test, see Conover (1980). The specific equations used in the calculations are as follows:

$$N = \sum_i n_i \text{ with } i = 1 \text{ to } k \quad (1)$$

$$R_i = \sum_j R(X_{ij}) \text{ with } j = 1 \text{ to } n_i \quad (2)$$

$$R_j = \sum_i O_{ij} R_i \text{ with } i = 1 \text{ to } c \quad (3)$$

$$S^2 = [I/(N-I)] [\sum_i t_i R_i^2 - N(N+I)^2/4] \text{ with } i = 1 \text{ to } c \quad (4)$$

$$T = (I/S^2) [\sum_i (R_i^2/n_i) - N(N+I)^2/4] \text{ with } i = 1 \text{ to } k \quad (5)$$

$$| (R_i/n_i) - (R_j/n_j) | > t_{1-\alpha/2} [S^2(N-I-T)/(N-k)]^{1/2} [(1/n_i) + (1/n_j)]^{1/2} \quad (6)$$

where R is the variable rank and N is the total number of observations. The first three equations find average ranks. Equation (4) calculates the sample variance, while equation (5) represents the test statistic. If, and only if, the decision is to reject the null hypothesis, equation (6) determines multiple comparisons of stock market returns across the various periods.

RESULTS

Table 1 offers summary statistics for the eight companies in the research cohort. Ericson is the most volatile company in the research sample with the largest standard deviation and sample variance. In fact, the monthly stock returns of Ericson represent the largest mean value, the largest median value, the smallest minimum value, the second largest maximum value and the smallest 120-month period return. Monthly returns for the companies range from a minimum of -0.5436 for Ericson to a maximum of 1.3657 for Apple. The most notable observation is the relatively large 120-month returns of more than 800% for Apple, Dell, Nokia and Qualcomm. All eight companies have a positive 120-month return although Ericson, Sony, Motorola and Hewlett-Packard clearly earn returns well below the other four companies.

The nonparametric empirical approach yields eight T-values of 34.36 (p-value = .0001) or higher, indicating a significant difference in stock market returns across the six period classifications for all companies in the study. Table 2 presents a summary of the average rank value of stock market returns for

each company across the six periods defined in this study. Assuming an alpha level of .05, the empirical results from equation 6 indicate all companies have three or more times with stock market returns that are statistically different.

Table 1: Summary Statistics for Computer and Cellular Hardware Firms Average Monthly Returns

Firm	Mean	Median	Standard Deviation	Sample Variance	Minimum	Maximum	Return for 120-month Period
AAPL	-0.0052	-0.0330	0.1928	0.0372	-0.3118	1.3657	1,020%
DELL	-0.0104	-0.0120	0.1362	0.0185	-0.3323	0.5324	974%
ERIC	0.0162	0.0015	0.2025	0.0410	-0.5436	1.0273	23%
HPQ	0.0001	-0.0040	0.1247	0.0156	-0.2613	0.4709	142%
NOK	-0.0090	-0.0195	0.1429	0.0204	-0.2980	0.5611	804%
MOT	0.0028	-0.0072	0.1199	0.0144	-0.2092	0.5044	61%
QCOM	-0.0081	-0.0245	0.1691	0.0286	-0.4858	0.6337	1,395%
SNE	0.0028	-0.0115	0.1113	0.0124	-0.3531	0.4202	46%

This table shows summary statistics for the average monthly returns of computer and cellular hardware firms. The sample period is the 120-months between August 1996 and August 2006.

The most interesting observation from Table is the consistent low relative return earned in the post-Y2K (period 3) and post-9/11 (period 4) eras. All eight companies achieve their lowest return period in the post-Y2K or post-9/11 eras. The results clearly imply companies in the same industry all face financial challenges during the declining phase of a stock market bubble. Although the consistent negative return in the two bubble eras might seem obvious, it is important to note all the companies in the study survived the stock market bubbles of the post-Y2K and post-9/11 eras. The fact that even survivors consistently struggled and not a single firm prospered is noteworthy given several firms earned high overall returns during the 120-months of the study. In fact, three companies (Dell, Nokia and Qualcomm) earned 120-month returns higher than 800% but still followed the tide of achieving their relative low return period in post-Y2K era. One of the limitations of the study is a potential survivor firm bias, where companies that did not survive the stock market bubble burst of the post-Y2K or post-9/11 eras are not part of the study. This limitation is somewhat mitigated by the observation that companies that did not survive almost certainly hit low periods in the post-Y2K or post-9/11 eras.

Table 2: Computer and Cellular Hardware Firms (Average Rank Order Value of Returns)

Firm	T-values (p-value)	Period 1 8/96 – 3/98	Period 2 4/98 – 11/99	Period 3 12/99 – 7/01	Period 4 8/01 – 3/03	Period 5 4/03 – 11/04	Period 6 12/04 – 8/06
AAPL	45.11 (.001)	29.2 -	83.7**	24.7 -	42.8 *	95.7***	87.1**
DELL	39.83 (.001)	104.0***	90.5**	17.2 -	67.0 *	60.6*	24.4 -
ERIC	34.36 (.001)	90.6**	58.0*	49.2*	17.2 -	103.8***	51.2*
HPQ	36.39 (.001)	83.9***	51.3**	38.1*	21.5 -	80.0***	85.9***
NOK	38.46 (.001)	93.9***	94.9***	25.0 -	48.1*	39.7*	64.6**
MOT	35.98 (.001)	64.0*	78.2**	18.3 -	25.8 -	101.4***	75.4**
QCOM	42.24 (.001)	75.4**	89.9***	19.1 -	28.8 -	97.5***	62.5*
SNE	35.33 (.001)	86.2**	62.4**	15.7 -	47.0*	95.1***	56.8**

This table shows average rank order value of stock market returns derived from a Kruskal-Wallis nonparametric methodology. The first column is a listing of the ticker symbols for the eight computer and cellular hardware companies included in the study. The second column is the value of the equation (5) test statistic and p-value for each company, which determines if there is a statistical difference in stock market returns across the six periods. Columns three through eight present the average rank value of the stock market returns for the six periods of the study. Asterisk(*) and negative signs (-) signify difference in average rank values as follows:

- (1) *** Indicates period with highest statistically significant return derived from equation 6.
- (2) ** Indicates period with second highest statistically significant return derived from equation 6.
- (3) * Indicates period with third highest statistically significant return derived from equation 6.
- (4) - Indicates period with lowest statistically significant return derived from equation 6.
- (5) Some periods do not have a return that is statistically significant from an alternative period.
- (6) Total return for ten year period is 102.6% for the Dow Jones Industrial Average
- (7) Total return for ten-year period is 91.3% for the NASDAQ Composite Index.

The high return period for computer and cellular hardware companies is more diverse across all firms compared to the relative low return periods. The eight companies in the study achieve their highest return period in four different eras. On the other hand, five of the eight companies achieve their highest relative return in the outsourcing era (period 5), providing moderate evidence of industry correlation during both the fall and rise of financial markets. Only Nokia and Dell do not have a relatively high return period in the outsourcing era. Nokia and Dell are two of three companies with the highest 120-month total return. The negative returns associated with a bear market decline appears to capture all information technology companies in the hardware business but positive stock market returns do not appear to be correlated in a bull market.

CONCLUDING COMMENTS

The purpose of this research is to compare the stock market performance of eight computer and cellular hardware companies across six information technology eras. The six period classifications are the browser era, Y2K era, post-Y2K era, post-9/11 era, outsourcing era, and mobile/wireless era. The statistical methodology incorporates a nonparametric Kruskal-Wallis test to compare the stock market performance of the companies in the research cohort. The primary data source is the Yahoo! finance website.

The results of this study imply the correlation of stock market prices for computer and cellular hardware companies during the time of a bear market are higher than a bull market. Growth rates and expenditures are more likely to influence stock prices in a bull market. Fear and falling valuations are the primary drive in a bear market. Specifically, all eight companies achieve their lowest return in the bear periods of the post-Y2K or post-9/11 eras. In contrast, the eight companies in the study achieve their highest return period in four different eras. The consistency of the bear market results is somewhat surprising given the ten-year variation in firm stock market return ranges from 23% to 1,395%.

One of the limitations of the study is a potential survivor firm bias, where companies that did not survive the stock market bubble burst of the post-Y2K or post-9/11 eras are not part of the study. This limitation is somewhat mitigated by the observation that companies that did not survive almost certainly hit low periods in the post-Y2K or post-9/11 eras. A second limitation of the study is the application of stock market returns across a very broad timeframe encompassing 120-months. Traditional finance event studies usually focus on daily data for a very short window of time in order to minimize the potential contamination of other events. This study requires the use of a larger than normal research window in order to compare the six different period classifications. Thus, the results should be interpreted with caution given the potential for correlation with other events that occurred in any given focus era. One avenue for future research is to examine consistency of the empirical results across alternative information technology sectors, which include semiconductor, software, network service, and vertically integrated companies.

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STATES OF NATURE AND INDICATORS OF MANAGER'S CORRUPTION IN INDONESIA

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ABSTRACT

This research investigates private sector corruption. The research focuses on a firm's life cycle as it relates to corruption. Free cash flows to dividends and leverage are used as indicators of private sector corruption. The research examines Non-financial firms listed on the Indonesia Stock Exchange from 1994 to 2006 including 1,680 observation years. Six hypotheses are tested using the Generalized Methods of Moments and Wald tests. The results demonstrate that leverage policy is a major indicator of firm micro level corruption while dividend policy is not. The results show maturity stage firms have the highest corruption levels and declining stage firms have the lowest levels.

JEL: G3; G30; G38

KEYWORDS: Growth, maturity, star, decline, free cash flow, dividend, leverage, corruption

INTRODUCTION

Agency theory argues that dividend and debt are powerful mechanisms to control agency conflicts. This research examines the corruption of managers as it relates to stages of development of non-financial industry firms in Indonesia. Development stages are categorized into four quadrants, as shown in Figure 1. This research argues that development stage has different effects on managers' corruption activities.

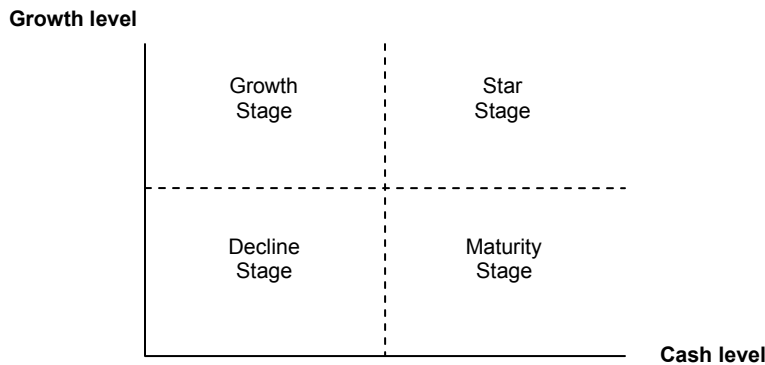
Managers of growth stage firms have less control over and levels of free cash flow. The condition arises from higher future investment opportunities for growth stage firms. Managers of maturity stage firms have greater control over and levels of free cash flows implying lower future investment opportunities. As a result, they can use free cash flows for their own interests. A firm with low growth and low cash flow enters the declining stage. Managers of declining firms have limited opportunities to use cash flow for their own interest. Firms with high growth and high cash flow are in the star stage and have sufficient investment opportunities to invest, and sufficient cash to finance the investment. However, the managers have more opportunities to use the cash flow for their interests than managers of declining firms.

Dickinson (2007) supported the use of cash flow to categorize a firm's state of nature. Dickinson (2007) showed cash flow patterns provide a parsimonious, but robust, indicator of firm life cycle stage that is free from distributional assumptions inherent when using a univariate or composite measure. Mahadwartha (2007b) fails to support that the managers will be obedient and truthful in using firm's cash flow. Mahadwartha (2007b) showed that dividend as shareholders' bonding mechanism for managers' pre-requisites fails and is insignificant in reducing managers' pre-requisites. The results suggest that the corruption at the firm level becomes severe when the dividend is an ineffective bonding mechanism. Another bonding mechanism is debt level. This research will strengthen Mahadwartha's (2007b) research results and examine the relationships of the dividend and debt as bonding on the cash flow. This research tests those mechanisms using four states of nature on Figure 1.

This research investigates corruption hypotheses on manager's action as it relates to four states of nature. Tests of corruption levels as it relates to the effectiveness of dividend and debt as bonding and monitoring mechanisms. Specifically, the research problems are as follows: a) Do growth stage firms

have lower corruption levels than star stage firms? b) Do growth stage firms have lower corruption levels than maturity stage firms? c) Do growth stage firms have higher corruption levels than declining stage firms? d) Do star stage firms have lower corruption level than maturity stage firm? e) Do star stage firms have higher corruption levels than declining stage firms? f) Do maturity stage firms have higher corruption levels than declining stage firm? The hypotheses describe the differences between firms based on their life stage. Growth stage firms have high growth levels but lower cash and seek debt to finance their investments. Growth-stage firms have low dividend levels because they utilize their cash for investment rather than paying their shareholders.

Figure 1: Quadrant of Firm’s State of Nature



Note: Growth stage is firms with high growth and low cash, Decline stage is firms with low growth and low cash, Maturity stage is firms with low growth high cash and Star stage is firms with high growth and high cash. Therefore, this research used the classification of stages based on growth level and cash level.

This research is the first to explicitly test manager corruption in Indonesia. It argues that corruption in Indonesia, especially in business sectors, is severe and elements of the corruption occur at the firm level. Furthermore, this study classifies firms based on growth and cash levels. The classification provides information on the effects of lifecycle stage on manager corruption. This research argues that debt and dividend are indicators of the manager corruption. Dividends and debt serve as bonding mechanisms and can be used to control agency problems. However governance and agency theory research seldom examine those policies as indicators of the managers corruption.

This research provides several contributions to the literature related to investors, regulators and shareholders. Investors and existing shareholders should watch carefully for the manager corruption and its effect on cash flow. They should maintain dividend and debt policies that bond and monitor manager actions. If dividend and debt are not effective control mechanisms, more aggressive governance mechanisms must be implemented, such as hiring forensic accountants and embittering auditing activities. Regulators are concerned about investor protections. This research provides regulators with information on manager corruption as it relates to firm life stage as well as the extent to which dividend policy and debt policy mitigates these problems.

The remainder of this research organized as follows. The literature review and hypotheses development section examines the previous literature on micro level corruption, and agency theory. The research methods section examines the statistical methods used in this research. Result and discussion section and conclusion section discuss and explore the result, and summarize the primary findings.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Cases of corruption reported by the media tend to involve a private sector citizen or corporation that promises to pay a politician or a public official in order to obtain an advantage or avoid a disadvantage. Because of the harm it does to economic efficiency and growth, and because of its social, political and ethical consequences, public sector corruption has been widely studied. It is also a subject of legal regulations designed to prevent and punish it. It seems reasonable to assume that private firms will be more efficient in protecting their own interests, and so corruption of this kind will be less likely to occur in the private sector. For example, it is assumed that the owners and managers of companies would take the necessary measures to prevent employees from acting in ways that are likely to harm the organization.

Likewise, there must be fewer incentives for this type of behavior in the private sector when there is effective competition and in which the market penalizes inefficient behavior. Some argue that economic, social and ethical impacts of micro level corruption must necessarily be less than that of macro level corruption involving politicians or public officials, because of the nature of the implied incentives.

ASEAN countries are developing countries characterized by high economic growth, low labor costs and fluctuating inflation rates. Indonesia has the same characteristics as other ASEAN countries. Indonesia was ranked 134 with score 2.4 along with Ethiopia (133), and Papua New Guinea (135) in the 2006 Transparency International Corruption Perception Index (www.transparency.org). Indonesia clearly has high levels of corruption. This research assumes that the agency conflict in Indonesia represents firm level corruption (support by Stulz in <http://www.nber.org/reporter/fall05/stulz.html>).

Manager control of firm resources enable micro level corruption in firms. Micro level corruption is more devastating than macro level corruption. Micro level corruption has an effect on macroeconomic performance. Clarke and Xu (2002) showed that bribery in utility companies (usually state owned companies) is more severe than in private firms. However, private firms have higher corruption (non-bribery activities) for personal economic agendas. Argandona (2003) argued that media and government notice private-corruption (micro level) less than public-corruption.

Previous empirical research suggests that corruption might result in the misallocation of talent to occupations with large opportunities for rent seeking (Baumol, 1990; Murphy et al., 1991). This might bias bureaucrats towards purchases on which it is easier to collect bribes (Shleifer and Vishny, 1993) or might affect income distribution adversely (Rose-Ackerman, 1978). Recent empirical studies found that corruption hampers growth, reduces income and increases inequality (Mauro, 1995; Myrdal, 1968; Li et al., 2000; Bardhan, 1997). Inequality-raising effects are not observed for high corruption levels because income levels are likely to be low for most people, resulting in low levels of income inequality (Li et al., 2000). Other studies found that corruption reduces investment (Mauro, 1995), increases the size of the unofficial economy (Friedman et al., 2000; and Murphy et al., 1993), and is associated with lower levels of human capital, urbanization, financial depth and foreign trade (Li et al., 2000). Other studies of corruption include Alam (1990), Ades and Di Tella (1997), Bliss and Di Tella (1997), Fisman (2001), Johnson et al. (1988), Johnson et al. (1997), Li (1999), and Mookherjee and Png (1995).

Corruption can prevail owing to two alternative circumstances. First, people with a fraud mentality are highly likely to be corrupt. Second, people without fraud mentalities may be encouraged by corruption opportunities. Hence, control mechanisms need to reduce agency conflicts, which in turn will minimize the corruption problem.

Corruption is a moral hazard action that occurs when managers' mentality is low and degraded. A pre-requisite is non-moral hazard action because the action occurs when the managers have a chance and power to fulfill their self-interest behavior. Agency theory argues that pre-requisite actions transfer firm

wealth to managers' personal wealth, and eventually deteriorate firm value. Self-interested between – party behavior support mechanisms to control agency conflicts. Agency theory has at least three assumptions: (i) normal or competitive markets; (ii) the nexus of contract is the principal-agent relationship between owners and managers; and (iii) optimal capital structure requires limited debt. Corruption and perquisites deteriorate firm value and harm shareholders' wealth. The theoretical framework tends to suggest that public enterprises are inefficient because there is a lack of capital market discipline. Principal-agent theory (Jensen and Meckling, 1976) is widely used to explain why closely held firms have better economic performance than do publicly owned firms. Because of the lack of market monitoring managers attempt to pursue their own interests at the expense of enterprises' interests in publicly owned firms.

Law enforcement plays major role in minimizing agency conflicts of corruption and perquisites. Indonesia has low levels of law enforcement and protection. Regulations and policies from government and regulators force managers to conduct honest and transparent business practices. Governance mechanisms are major issues in Indonesia. Tandelilin et al. (2005) showed that regulation obedience increases firm performance.

Researchers tend to have little information about actual cases of micro level corruption and aggregate data on the phenomenon (the forms it takes, how it wide spreads, and its costs). There would seem to be little doubt that unethical or ethically questionable practices are commonplace among purchasing managers (Forker and Janson, 1990). Wood (1995) conducted a survey among purchasing managers in the United Kingdom and concluded that the most widespread dubious practices were gifts (82%), invitations to shows (27%), misuses of the bidder information (27%) and offers of trips and holidays (18%).

Several factors support the emergence of private sector corruption. First, progress made in the fight against public sector corruption has shed light on the importance of private sector corruption. This is reflected in international relations, specifically in the ratification of the OECD Convention and the modification of many countries' legislation to make bribery of foreign politicians or public officials a punishable offence. Second, the intensification of competition in many markets appears to have led to a proliferation of corrupt practices to the detriment of economic efficiency and justice in trading relations. This similar phenomenon has made companies more aware of the ways in which private sector bribery and corruption reduce competition. Third, the removal of many former trade barriers has created a need for a level playing field, in which there can be no room for corrupt practices. Fourth, the privatization of many publicly owned companies has shifted public sector problems to the private sector. In fact, the distinction between public and private sector corruption is increasingly irrelevant.

Fifth, liberalization and deregulation in many countries in transition economies have shown very clearly, what conditions the institutional, legal and moral fabric of a society must satisfy in order for the market economy and democracy to take root. Sixth, marketing practices have become more professional, highlighting problems deriving from certain corrupt practices. Seventh, for long periods, the moral awareness of society in general has been stultified, allowing corrupt practices to flourish. The effect of these practices is that society itself has started to demand stricter standards of morality in business.

Fan, Rui and Zhao (2006) used event study methodologies to test the accusation of several China firm top managers for corruption and bribery. They studied firm financing decisions based on managers' court punishment. The result showed that firms whose managers are convicted as corruptors had a decreasing debt rate in the post penalty announcement period. Fan, Rui and Zhao (2006) suggested that the level of debt would decrease because China's debt policy depends on banking sectors rather than capital markets and depends less on equity offering.

In an economy plagued by corruption, firms are likely to finance with more debt as opposed to equity. This may be the case for two reasons. First, debt provides a higher degree of monitoring ability and enforcement by investors (Smith and Warner, 1979) than an open-ended equity claim, which provides little protection from expropriation by managers or bureaucrats. Second, it may be easier for a corrupt bureaucrat to channel funds in the form of loans to his connected firms through a bank he controls (La Porta et al., 2002; Sapienza, 2004), rather than through the equity market that is more difficult to influence.

Mahadwartha and Hartono (2002) used seemingly unrelated regression to test the balancing of agency theory and substitution effects of agency control mechanisms. They tested debt policy, dividend policy, institutional ownership and managerial ownership as control mechanisms of the agency conflict. They used 1995-2002 data on Indonesian listed firms to test their contentions. The result support the balancing of agency conflict, and suggest that agency conflicts are more severe in crisis periods than in normal periods.

Moreover, Mahadwartha (2003) showed that the dividend and debt have negative and significant relationships with managerial ownership. Managerial ownership is a mechanism to control managers' pre-requisites (and hopefully corruption) with an option to acquire a firms share through stock options or direct reward systems. Managers that have ownership in a firm will act as agents and principals. This ownership scheme will reduce the agency conflict between the agents and principals. Meanwhile, debt acts as a bonding and monitoring mechanism. Firms are more concerned about costs to control agency conflicts, and will be reluctant to use two or more control mechanisms if one is already effective.

Ismiyanti and Hanafi (2004) replicated Jensen et al. (1992), combined with Chen, and Steiner (1999) to test the balancing of the agency theory, risk emergence from it, bonding and monitoring mechanisms of the debt and dividends. The study supports the balancing of agency theory. The findings partially support the bonding of the dividends, support the bonding and monitoring of debt policy, and failed to support non-linear relationship risks with dividends and debt.

Mahadwartha (2004) tested entrenchment and convergence hypothesis between managers and internal institutional ownerships. The study used Indonesian listed firms as samples, in 1994 until 2002 period of analysis, and generalized methods of moment statistical analysis. The result supported the convergence hypothesis that managers would efficiently operate with internal institutional ownership that monitored and bonded their behavior. Firms with high internal institutional ownership will have higher values than those with low internal institutional ownerships. The result also suggested that the free cash flow has high contribution on the agency conflict through pre-requisites.

Mahadwartha (2007b) tested managers of Indonesian firms regarding their pre-requisites actions on dividend. The study showed that the managers tend to expropriate shareholders and debt holders wealth. Managers usually collaborated with shareholders in expropriate debt holders wealth. The free cash flow used as source of pre-requisites and suggested the less protected Indonesian debt holders. High level of free cash flow will decrease the level of dividend payment as bonding mechanisms in agency theory (Mahadwartha and Hartono, 2002; Ismiyanti and Hanafi, 2004; Mahadwartha, 2004; Mahadwartha, 2007a; and Mahadwartha and Ismiyanti, 2007).

Mahadwartha (2007a) showed that during the crisis, Indonesian managers have more power to expropriate firm wealth because they have less investment opportunities. However, shareholder bonding through dividend increases, and effectively controls manager pre-requisites. Mahadwartha and Ismiyanti (2007) divided firms into low and high growth and confirmed that managers in high growth firms are more sensitive to free cash flow. Nonetheless, the studies described above ignore the life stage of the firm. The studies are also not concerned with corruption of managers using free cash flow. Meanwhile,

this research focuses on the quadrant of growth, maturity, star and decline condition and corruption of managers using free cash flow.

Firms in the star stage will have high growth levels and sufficient cash to finance those investment opportunities. Meanwhile, profitable investments will provide cash that is directly subject to manager authorization. The authorization will eventually provide the manager a chance to expropriate firm cash flow for his own interests. Managers of firms in the growth stage have lower chances to expropriate free cash flow because their cash is used to finance growth associated with investment opportunities.

H₁: Firms in Growth Stage will have lower corruption than those in Star Stage.

Firms in the maturity stage will have low growth and high cash flow. Maturity stage firms suffer from expropriation of cash flow because they lack investment opportunities. The corruption worsens when the debt and dividend levels are lower or there is no bonding or monitoring mechanism of manager actions. This research argues that maturity stage firms have higher corruption levels than growth stage firms. Maturity firms have sufficient cash flow to expropriate because they lack investment opportunities.

H₂: Firms in Growth Stage will have lower corruption than those in Maturity Stage.

Declining stage firms have low growth and low cash flow. The managers of declining firms will have less opportunity to expropriate cash flow. If firms have high debt and dividend levels, those firms have debt financed dividends that mostly reduce debt holders wealth. If declining firms have high debt levels but low dividend levels, those firms have debt expropriation by managers that also reduce debt holder's wealth. Manager corruption in declining firms do not harm shareholders directly, but indirectly affect shareholder wealth through deflated firm value.

H₃: Growth stage firms will have higher corruption than declining stage firms.

The similarity between star stage firms and maturity firms is that they have high cash levels. However, the opportunity to expropriate cash flow is low in star stage firms because they have high growth to finance with the cash flow. Meanwhile, firms in maturity stage have low growth levels, and if the relationships of cash flows to dividend and debt are negative, the corruption level is severe.

H₄: Star stage firms will have lower corruption than those in the maturity stage.

Declining firms have the lowest corruption level because they lack cash and investment opportunities. Managers of declining firms work to increase shareholders wealth even if they expropriate debt holders in the process. Compared to star and maturity stage firms, declining firms have lower manager corruption levels.

H₅: Firms in star stage will have higher corruption than those in declining stage.

H₆: Firms in maturity stage will have lower corruption those in declining stage.

Table 1 shows the hypotheses summary containing quadrants of decline, growth, star and maturity firms. Each hypothesis will be tested using Wald test described later in research methods.

Table 1: Summary of Hypotheses on Corruption Level Differences

H _A	State of Nature		State of Nature
H ₁	Growth Stage	<	Star Stage
H ₂	Growth Stage	<	Maturity Stage
H ₃	Growth Stage	>	Decline Stage
H ₄	Star Stage	<	Maturity Stage
H ₅	Star Stage	>	Decline Stage
H ₆	Maturity Stage	>	Decline Stage

Table 1 shows the summary of six hypotheses based on firm's state of nature. The < (>) sign shows left column have lower (higher) corruption level than the right column.

RESEARCH METHODS

This research uses several statistical methods. The data sample is taken from non-financial firms listed on the Indonesian stock exchange. For inclusion in the sample, firms must have completed financial reports. The period of analysis extends from 1994 until 2006. This research divides the sample into quadrants based on growth and cash flow levels. Asset growth and cash level from net cash flow both using 1994 until 2006 year observations proxy growth.

This study uses three control variables for dividend and leverage. The control variable for dividends is return on equity. Return on equity indicates the minimum return that the shareholders should receive from their investment. It should provide shareholders sufficient gain to cover their investment and offer a risk reward. Dividends are a part of that return. Therefore, the shareholders focus on the return on equity. Reilly (1997) found that dividend growth mainly affects the aggregate return on equity (ROE). Thus, Reilly (1997) supported the basic argument that ROE as return for shareholders will affect yields from dividend.

Return on asset is the return from asset utilization. Managers have an obligation to support asset utilization activities, such as investment in real assets, day-to-day operation, inventory management, receivable management, etc. Debt holders as a contributor of financing have their own pretension to maximize. Therefore, their return depends on the asset utilization mechanism. Piot and Missonier-Piera (2007) found the associations between costs of debt and return on assets. Their findings support the argument that debt holders will more likely depend on asset utilization mechanisms (ROA) in their debt analysis decision.

The last control variable is a crisis dummy that controls the impacts of crisis period in 1997. Crisis period financial data have different behaviors than in normal periods. Several researches that used Indonesian firm financial data found that crisis has significant impacts on financial policy (Mahadwartha, 2004; and Ismiyanti and Hanafi, 2004).

This research uses the variables net cash flow (NCF) and total asset growth (AG) to divide firms into growth, star, maturity, and declining stage categories in each year of analysis. Other variables such as dividends (DIV), leverage (LEV), free cash flow (FCF), dummy variables of states of nature and control variables (ROA, ROE, and dummy crisis; DC) composes the regression equation. Net cash flow (NCF) is proxied from differences between operating cash inflows and operating cash outflows.

$$\text{Net Cash Flow} = \text{OCR} - \text{OCO} \tag{1}$$

Asset Growth (AG) is proxied from asset growth through the 1994 to 2006 period. Using asset growth as a substitute reduces the period analysis for statistical tests to 1995 to 2006.

$$Asset\ Growth = \frac{Asset_t - Asset_{t-1}}{Asset_{t-1}} \quad (2)$$

Dividend payout ratio (DIV) is use as proxy for dividend policy. Mahadwartha (2007b) showed that from 1995 until 2002, 42% of Indonesian listed firms paid dividends and 67.3% paid dividend before the 1998 financial crisis.

$$Dividend\ Payout = \frac{Dividend\ Payment}{Net\ Income} \quad (3)$$

This research employs the long-term debt to total asset ratio as proxy for debt (LEV). Ismiyanti and Hanafi (2004) show that when using long-term debt to total assets rather than total debt to total asset, the result is robust and not rejected the balancing of agency theory tested.

$$Debt = \frac{Long\ Term\ Debt}{Total\ Asset} \quad (4)$$

Jensen's (1986) free cash flow (FCF) hypothesis suggests that firms with more growth opportunities have lower free cash flow and; therefore, they need to pay lower dividends to reduce the agency cost of free cash flow. Jensen's free cash flow hypothesis was supported by Rozeff (1982), and Smith and Watts (1992). This study, in a contrary to Jensen (1986), argues negative relationships between free cash flow and dividend payout ratio because of unique agency problems in Indonesian listed firms. This study used Hackel et al. (2000) measurement of FCF with discretionary methods divided by total assets.

$$FCF = \frac{TFCF + DOCO + DCEX}{Total\ Asset} \quad (5)$$

$$TFCF = (OCR - OCO) - CEX \quad (6)$$

$$DOCO = (OCO\ growth - sales\ growth) * (0.2 * OCO) \quad (7)$$

$$DCEX = (CEX\ growth - COGS\ growth) * CEX \quad (8)$$

$$OCO\ growth = \frac{OCO_t - OCO_{t-1}}{OCO_{t-1}} \quad (9)$$

$$Sales\ growth = \frac{Sales_t - Sales_{t-1}}{Sales_{t-1}} \quad (10)$$

$$CEX\ growth = \frac{CEX_t - CEX_{t-1}}{CEX_{t-1}} \quad (11)$$

$$COGS\ growth = \frac{COGS_t - COGS_{t-1}}{COGS_{t-1}} \quad (12)$$

Where DOCO is the discretionary OCO, DCEX is the discretionary CEX, OCR is the operating cash inflows; OCO is the operating cash outflows; CEX is the capital expenditures; and COGS is the cost of goods sold

This research employs dummy variables as proxies for Growth stage, Star stage, Maturity stage and Declining stage. D_G is dummy variable for Growth stage, D_S for Star stage, D_M for Maturity stage, and D_D for Declining stage. D_i is equal to one to represent each stage on the quadrant. Dummy crisis will divide period of analysis into 2 sub-periods: 1995 to 1999 for $D_C = 0$, and 2000 to 2006 for $D_C = 1$.

Return on equity (ROE) and return on asset (ROA) categorized by profitability ratio. One of the most difficult attributes of a firm to conceptualize and to measure is profitability (Ross et al., 2005: 37). Dummy crisis is DC = 0 for 1994-1998, and DC = 1 for 1999-2006.

$$ROE = \frac{Net\ Income}{Shareholders\ Equity} \quad (13)$$

$$ROA = \frac{Net\ Income}{Total\ Assets} \quad (14)$$

This research employs two major statistical tools to test the hypotheses, i.e., the Generalized Method of Moment (GMM) and Wald test. The GMM estimator belongs to a class of estimators known as M-estimators defined by minimizing some criterion function. GMM is a robust estimator in that it does not require information of the exact distribution of the disturbances. GMM estimation is based upon the assumption that the disturbances in the equations are uncorrelated with a set of instrumental variables. The GMM estimator selects parameter estimates, so that the correlations between the instruments and disturbances are as close to zero as possible, as defined by a criterion function. By choosing the weighting matrix in the criterion function appropriately, GMM is robust for heteroscedasticity and or autocorrelation of unknown form.

The Wald test computes a test statistic based on the unrestricted regression. The Wald statistic measures how close the unrestricted estimates come to satisfying the restrictions under the null hypothesis. If the restrictions are in fact true, the unrestricted estimates should come close to satisfying the restrictions. All estimation magnitude is in absolute terms.

This research tests sensitivity analysis methods with three pairs of equations. The first is the original equation of dividend and debt with free cash flow. The second is the modified equation with dummy quadrant, and the last is a method with interaction of free cash flow with dummy quadrant. The exception is treating D_D as a dummy for the declining period. GMM estimates the variables of the D_D by constant coefficient of regression. Therefore dummy declining D_D is excluded from the equation. GMM repels the equation that have singular matrix between instrumental variables and exogenous variables. Free cash flow is excluded in the third equation to prevent a near singular matrix problem. Meanwhile this research also uses D_D for interaction variables with free cash flow, therefore the dummy decline D_D is only used as an interaction with free cash flow in the third equation.

The first equation tests the effect of free cash flow to dividend with control variable D_C . It is a preliminary test of free cash flow to dividend and leverage, as justification for the next step. The second equation tests free cash flow, dummy quadrant, ROE and ROA as control variables. In the second equation, D_D is represented by α_3 and α_4 . In the third equation, which is the main equation, this research tests the interaction between dummy quadrant and free cash flow, along with ROE, ROA and D_C as control variables. However, FCF variable excludes from the equation to isolate the interaction variables of free cash flow from the effect of the main variables free cash flow. The first equation:

$$DIV = \alpha_1 + \beta_{11}FCF + \beta_{12}D_C + \varepsilon_{1i} \quad (17)$$

$$LEV = \alpha_2 + \beta_{21}FCF + \beta_{22}D_C + \varepsilon_{2i} \quad (18)$$

The second equation:

$$DIV = \alpha_3 + \beta_{31}FCF + \beta_{32}D_G + \beta_{33}D_S + \beta_{34}D_M + \beta_{36}D_C + \beta_{37}ROE + \varepsilon_{3i} \quad (19)$$

$$LEV = \alpha_4 + \beta_{41}FCF + \beta_{42}D_G + \beta_{43}D_S + \beta_{44}D_M + \beta_{46}D_C + \beta_{47}ROA + \varepsilon_{4i} \quad (20)$$

The third equation:

$$DIV = \alpha_5 + \beta_{52}D_G + \beta_{53}FCF*D_G + \beta_{54}D_S + \beta_{55}FCF*D_S + \beta_{56}D_M + \beta_{57}FCF*D_M + \beta_{59}FCF*D_D + \beta_{510}D_C + \beta_{511}ROE + \varepsilon_{5i} \quad (21)$$

$$LEV = \alpha_6 + \beta_{62}D_G + \beta_{63}FCF*D_G + \beta_{64}D_S + \beta_{65}FCF*D_S + \beta_{66}D_M + \beta_{67}FCF*D_M + \beta_{69}FCF*D_D + \beta_{610}D_C + \beta_{611}ROA + \varepsilon_{6i} \quad (22)$$

Table 2 shows the Wald coefficient test of hypotheses. Each hypothesis is tested using its interaction and dummy quadrant. The sign of less than or greater than is more on statistical manners rather than mathematical manners. For example, -0.5 is less than 0.2 in mathematical manners, however -0.5 have greater effect on dependent variable than 0.2 in statistical terms.

Table 2: Summary of Wald Test

Hypotheses		Wald Test
H ₁ :	Firms in Growth Stage will have lower corruption than those in Star Stage.	DIV: $\beta_{52} + \beta_{53} < \beta_{54} + \beta_{55}$ LEV: $\beta_{62} + \beta_{63} < \beta_{64} + \beta_{65}$
H ₂ :	Firms in Growth Stage will have lower corruption than those in Maturity Stage.	DIV: $\beta_{52} + \beta_{53} < \beta_{56} + \beta_{57}$ LEV: $\beta_{62} + \beta_{63} < \beta_{66} + \beta_{67}$
H ₃ :	Firms in Growth Stage will have higher corruption than those in Decline Stage.	DIV: $\beta_{52} + \beta_{53} > \alpha_5 + \beta_{59}$ LEV: $\beta_{62} + \beta_{63} > \alpha_6 + \beta_{69}$
H ₄ :	Firms in Star Stage will have lower corruption than those in Maturity Stage.	DIV: $\beta_{54} + \beta_{55} < \beta_{56} + \beta_{57}$ LEV: $\beta_{64} + \beta_{65} < \beta_{66} + \beta_{67}$
H ₅ :	Firms in Star Stage will have higher corruption than those in Decline Stage.	DIV: $\beta_{54} + \beta_{55} > \alpha_5 + \beta_{59}$ LEV: $\beta_{64} + \beta_{65} > \alpha_6 + \beta_{69}$
H ₆ :	Firms in Maturity Stage will have lower corruption than those in Decline Stage.	DIV: $\beta_{56} + \beta_{57} < \alpha_5 + \beta_{59}$ LEV: $\beta_{66} + \beta_{67} < \alpha_6 + \beta_{69}$

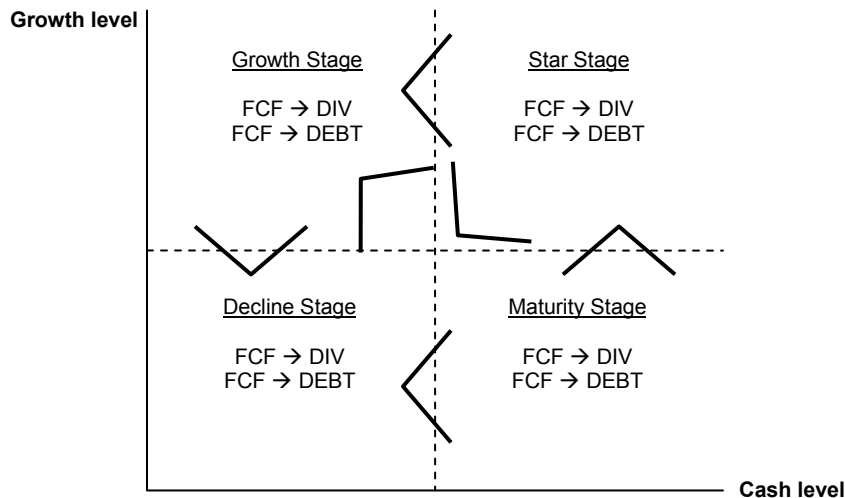
Table 2 shows the summary of Wald Test. The right column shows the coefficient parameter of each variable. Wald test computes a test statistic based on the unrestricted regression. Wald test only uses in equation three, and test difference magnitude of interaction variables free cash flow and dummy quadrant.

The research framework in Figure 2 shows that each quadrant has different relationships with other quadrant based on the corruption. The corruption tests the relationship of free cash flow to dividend and debt. The “<” or “>” symbolizes the magnitude of the effect of each quadrant. The horizontal line represents cash level proxy by net cash flow and the vertical line represents growth level proxy by asset growth.

RESULTS AND DISCUSSION

Descriptive statistics of each main variable of dividend (DIV), leverage (LEV), free cash flow (FCF), return on asset (ROA) and return on equity (ROE) are present in Table 3. The statistics shows that return on assets has a lower mean than other variables along with return on equity, leverage, dividend and free cash flow respectively. Total observations are 1,680 firm’s year observation with period analysis 1995 to 2006. As many as 18 firms excluded from the samples due to missing data.

Figure 2: Quadrant of Research Framework



Note: The horizontal line is cash level and the vertical line is growth level. The figure shows the magnitude effect of each stage to each other in the relationship of FCF to dividend and FCF to debt.

Table 3: Descriptive Statistic

Variable	DIV	LEV	FCF	ROA	ROE
Mean	0.26896	0.21627	0.29873	0.01472	0.07495
Std. Dev.	0.87045	0.21630	5.44800	0.13960	3.10241
Observations	1,680 Firm's Year Observation				

Variables are DIV for dividend, LEV for leverage, FCF for free cash flow, ROA for return on assets, and ROE for return on equity. Total observations are 1680 firm's year observation with period analysis 1995 to 2006.

Return on asset has lower standard deviation than leverage, dividend, return on equity, and free cash flow respectively. The preliminary results on descriptive statistics suggest that the free cash flow variable will have higher standard error than other variables. If the hypothesis holds then free cash flow is more likely to be excluded in the third equation. Return on equity, on the other side, has the second highest standard deviation. This suggests that the effect of ROE to leverage is more likely lower than ROE to dividends.

Table 4 shows six panels of the GMM regression result for the first equation of dividend and leverage (Panel 1 and Panel 2), the second equation of dividend and leverage (Panel 3 and Panel 4), and third equation of dividend and leverage (Panel 5 and Panel 6). Panel 1 and Panel 2 contain dividend and leverage as endogenous variables, and free cash flow and dummy crisis as exogenous variables.

The result shows that free cash flows have insignificant effects on dividends and leverage with consistent negative magnitude. High free cash flow reduces the level of dividends and leverage. D_C variable has a significant effect on dividend and leverage. The effect of D_C to dividend is negative, meaning that in the 2000 to 2006 period, firms were less likely to distribute their earnings as dividend payment. Meanwhile, the effect of D_C to leverage is positive indicating that the leverage level in the 2000 to 2006 period is higher than in the 1995 to 1999 period.

R^2 for the first equation shows lower magnitude. For Panel 1; the R^2 is 3.101%, higher than Panel 2 of 2.979%. The D_C variable is the main contributor for R^2 whereas free cash flow has less contribution to R^2 . The first equation suggests that the effect of free cash flow on dividends and leverage is weak. Therefore, the result support the idea of adding more variables especially the dummy quadrant on the second equation.

Table 4: GMM Regression Result

	Coefficient	t-Statistic	
Panel 1: 1st Equation; Dividend			
α_1	0.3356	11.405	***
β_{11} FCF	-0.0017	-0.813	
β_{12} D _C	-0.1134	-2.708	***
Adjusted R ²		3.101%	
Panel 2: 1st Equation; Leverage			
α_2	0.2000	25.341	***
β_{21} FCF	-0.0004	-0.410	
β_{22} D _C	0.0281	2.653	***
Adjusted R ²		2.979%	
Panel 3: 2nd Equation; Dividend			
α_3	0.1760	3.572	***
β_{31} FCF	-0.0013	-0.616	
β_{32} D _G	0.2450	3.988	***
β_{33} D _S	0.1911	3.912	***
β_{34} D _M	0.1366	2.506	**
β_{36} D _C	-0.1020	-2.167	**
β_{37} ROE	0.0016	0.922	
Adjusted R ²		6.090%	
Panel 4: 2nd Equation; Leverage			
α_4	0.2114	16.834	***
β_{41} FCF	-0.00002	-0.023	
β_{42} D _G	-0.0128	-0.850	
β_{43} D _S	-0.0003	-0.021	
β_{44} D _M	0.0095	0.651	
β_{46} D _C	0.0229	1.993	**
β_{47} ROA	-0.1571	-3.651	***
Adjusted R ²		8.711%	
Panel 5: 3rd Equation; Dividend			
α_5	0.1776	3.582	***
β_{52} D _G	0.2428	3.933	***
β_{53} FCFG	-0.0010	-0.361	
β_{54} D _S	0.1860	3.762	***
β_{55} FCFS	0.0022	0.503	
β_{56} D _M	0.1329	2.403	**
β_{57} FCFM	-0.0045	-0.503	
β_{59} FCFD	-0.0033	-1.425	*
β_{510} D _C	-0.0995	-2.099	**
β_{511} ROE	0.0016	0.944	
Adjusted R ²		14.168%	
Panel 6: 3rd Equation; Leverage			
α_6	0.2129	16.939	***
β_{62} D _G	-0.0145	-0.959	
β_{63} FCFG	0.0012	1.336	
β_{64} D _S	-0.0008	-0.052	
β_{65} FCFS	-0.0027	-0.495	
β_{66} D _M	0.0059	0.406	
β_{67} FCFM	0.0067	2.005	**
β_{69} FCFD	-0.0034	-4.756	***
β_{610} D _C	0.0232	2.015	**
β_{611} ROA	-0.1624	-3.759	***
Adjusted R ²		10.650%	

***) 1%; **) 5%; and *) 10% significance level

Endogenous variables are dividend and leverage. Exogenous variables are free cash flow, dummy growth, dummy star, dummy maturities, dummy crisis (DC=0 for 1995-1999; and DC=1 for 2000-2006), return on equity, and variables interaction between dummy and free cash flow.

The second equation of dividend and leverage is divided into two panels, Panel 3 (dividend as an endogenous variable), and Panel 4 (leverage as an endogenous variable). R^2 for Panel 3 is 6.090% and for Panel 4 is 8.711%. There is a significant increase in R^2 between first equation and second equation. However, the R^2 for Panel 3 is higher than Panel 4 although in Panel 4 fewer variables have a significant effect on the endogenous variable. The high R^2 in Panel 4 derives from high t-statistics value that represents the decline quadrant (D_D). This result suggests that the effect of D_D to leverage dominates the effect of the other quadrant to leverage.

The free cash flow variable consistently has an insignificant effect on dividend and leverage. Therefore, this research supports excluding free cash flow from the third equation. The crisis dummy (D_C) is consistent with the result of the first equation and has a significant negative effect on dividend and positive effect on leverage.

All dummy quadrant variables (D_G , D_S , D_M , and α_3 for D_D) have a positive significant magnitude on dividend (Panel 3). Further, the Wald test is conducted on the third regression equation. The positive magnitude of D_G , D_S , D_M and α_3 coefficients on dividend shows that firms in all states of nature will tend to pay dividend. Furthermore, high dividend payment will more likely occur for firms in the growth stage. The result suggests that manager corruption on growth stage firms is lower than other stages.

However, in Panel 4, only α_4 (D_D) has a significant magnitude on leverage. The result suggests that D_D will have high effects on leverage with other variables do not. The negative sign of D_G and D_S suggests that firms in those stages have less leverage than other quadrants. The Wald test examines the hypothesis to prove it more robust and statistically valid. Return on equity has a positive sign but insignificant on dividend (Panel 3). Return on assets has a negative significant effect on leverage (Panel 4). High return on asset decreases the need for leverage. The result suggests that return on asset is derived from asset utilization rather than leverage utilization.

Panel 5 and 6 shows the regression result that includes interaction variables of dummy quadrant and free cash flow. However, the free cash flow variable excluded from the equation. The decision is based on the result of first and second equations that shows free cash flow has an insignificant effect on leverage and dividends.

Dummy quadrant D_G and the interaction variable FCFG have positive and negative effects on dividend respectively, but the interaction effects are insignificant. Dummy quadrant D_S and the interaction variable FCFS have positive signs, but the interaction variable is insignificant. Dummy quadrant D_M and interaction variable FCFM have positive and negative signs respectively, but the interaction variable is insignificant. Dummy quadrant D_D , coefficient α_5 , and the interaction variable FCFD are significantly positive and negative respectively.

Dummy quadrant D_G and the interaction variable FCFG have negative and positive effects to leverage respectively; nevertheless, both variables are insignificant. Dummy quadrant D_S and variable interaction FCFS have negative signs and are insignificant. Dummy quadrant D_M and interaction variable FCFM have positive signs; however, only FCFM is statistically significant. Dummy quadrant D_D that is α_6 and the interaction variable FCFD have positive and negative signs, both are significant.

Return on equity in Panel 5 is consistent with Panel 3, which is positive and insignificant. D_C variable has a significant effect on dividend and leverage, yet the sign is negative for the dividend equation, and positive for the leverage equation. Return on assets in Panel 5 is also consistent with Panel 3, which is negative and has a significant effect on leverage.

The adjusted R² is higher in the third equation than in the second and first equations. The R² for the dividend equation is 14.168% and for leverage is 10.650%. The GMM statistical analysis in Table 4 is insufficient to test the hypotheses. Therefore, the research uses the Wald test to examine the restrictions among variables stated in the hypotheses.

Table 5: Wald Test: Testing of Hypothesis 1, 2 and 3

H₁: Firms in Growth Stage Will Have Lower Corruption Than Those in Star Stage							
	Growth				Star		Chi-square
Sub-equation Dividend							
Hypothesis	β_{52}	+	β_{53}	<	β_{54}	+	β_{55}
Result	0.2428	+	-0.001	>	0.186	+	0.0022
			0.2418	>	0.1882		0.956
Sub-equation Leverage							
Hypothesis	β_{62}	+	β_{63}	<	β_{64}	+	β_{65}
Result	-0.0145	+	0.0012	>	-0.0008	+	-0.0027
			-0.0133	>	-0.0035		0.4018
H₂: Firms in Growth Stage Will Have Lower Corruption Than Those in Maturity Stage							
	Growth				Maturity		Chi-square
Sub-equation Dividend							
Hypothesis	β_{52}	+	β_{53}	<	β_{56}	+	β_{57}
Result	0.2428	+	-0.001	>	0.1329	+	-0.0045
			0.2418	>	0.1284		3.4137 *
Sub-equation Leverage							
Hypothesis	β_{62}	+	β_{63}	<	β_{66}	+	β_{67}
Result	-0.0145	+	0.0012	>	0.0059	+	0.0067
			-0.0133	>	0.0126		2.7246 *
H₃: Firms in Growth Stage Will Have Higher Corruption Than Those in Decline Stage							
	Growth				Decline		Chi-square
Sub-equation Dividend							
Hypothesis	β_{52}	+	β_{53}	>	α_5	+	β_{59}
Result	0.2428	+	-0.001	>	0.1776	+	-0.0033
			0.2418	>	0.1743		0.4252
Sub-equation Leverage							
Hypothesis	β_{62}	+	β_{63}	>	α_6	+	β_{69}
Result	-0.0145	+	0.0012	<	0.2129	+	-0.0034
			-0.0133	<	0.2095		75.7389 ***

***) 1% significance level; *) 10% significance level

Table 5 shows the Wald test of hypothesis 1, 2 and 3. H₁ stated that firms in the growth stage have lower corruption than those in the star stage, where the effect of free cash flow to dividend and leverage is negative. The test shows a positive effect on free cash flow to dividend with values of 0.2418 and 0.1882. Hence, H₁ is rejected. Statistically, firms in the growth stage have the same corruption level as those in the Star stage. Although the Wald test on dividends shows no significant result, mathematically the result suggests that, the firms in star stage have higher corruption level than in the growth stage. Free cash flow has a positive effect on dividends, and less positive one in star stage firms.

Meanwhile, for leverage (sub-equation leverage), the result mathematically shows a higher negative magnitude of growth stage firms than star stage firms (-0.0133 and -0.0035). The result suggests that free cash flow has a negative effect on leverage; thus, growth stage firms have a higher corruption level than Star stage firms. However, both tests are insignificant, and the result is less conclusive.

H₂ stated that firms in growth stage have lower corruption than those in maturity stage, and the effect of free cash flow to dividend and leverage is negative. The Wald test result for hypothesis 2 shows a positive and significant (0.2418 and 0.1284) effect of free cash flow to dividend, and growth stage firms have a higher magnitude than maturity stage. High free cash flow followed by high dividend payment; therefore, a lower effect indicates that the firms in maturity stage have higher corruption levels than those in growth stage. Although the coefficient parameter is positive the corruption level appears in coefficient differences.

Sub-equation leverage shows a negative sign for growth stage firms and a positive one for maturity stage firms (-0.0133 and 0.0126). Both effects have different magnitudes, and the differences are statistically significant. The result indicate a contrary result with sub-equation dividend. Despite the contradiction, leverage has different characteristics than the dividend in controlling management corruption. The result suggests that dividend payment is a more reliable indicator of manager corruption than leverage. Usually, there is another factor influencing leverage, especially for growth stage firms that have high investment opportunities and fewer financing alternatives.

H₃ stated that firms in growth stage have higher corruption level than those in decline stage. Sub-equation dividend shows a positive effect of free cash flow to dividend (0.2418 and 0.1743); however, the Wald test shows insignificant differences among coefficients. The magnitude of coefficient mathematically shows that growth stage firms have higher magnitude than decline stage. However, there is no different effect on free cash flow to dividend between growth and decline stage firms.

Sub-equation leverage shows a negative sign for growth stage (-0.0133) and positive sign for decline stage firms (0.2095). The coefficients are significantly different. Firms in growth stage decrease their leverage if they have high free cash flow, and those in decline stage increase their leverage if they have high free cash flow. The result indicate that Growth stage firms have higher corruption levels than decline stage firms.

Table 6 shows the Wald test result for hypothesis 4, 5 and 6. H₄ stated that firms in star stage would have lower corruption than those in maturity stage. Sub-equation dividend shows a positive sign among star stage and maturity firms (0.1882 and 0.1284); however, the coefficient difference is statistically insignificant. The increasing rate per unit of free cash flow increases leverage by 0.1882 for star stage firms and 0.1284 for maturity stage firms. Mathematically, the coefficient of maturity stage is higher than star stage.

Sub-equation leverage shows a negative coefficient for star stage firms and a positive coefficient for maturity stage firms (-0.0035 and 0.0126). In addition, the coefficient difference is statistically insignificant. Mixed results show that star stage firms decrease leverage if free cash flow increases by one unit. Maturity stage firms increase leverage if the free cash flow increases by one unit.

H₅ stated that firms in star stage would have higher corruption than those in decline stage. Sub-equation dividend shows star stage firms a have higher coefficient than decline stage firms (0.1882 and 0.1743) with Chi-square of 0.024 which is statistically insignificant. The effect of free cash flow to dividend is that there is no difference between star stage and decline firms.

Sub-equation leverage shows that the effect of the free cash flow on the leverage of star stage firms is negative (-0.0035), while for decline stage firms the effect is positive (0.2095). The difference between coefficients is statistically significant. Increasing the rate of free cash flow by one unit will decrease the leverage by -0.0035 for star stage firms, and increase it by 0.2095 for decline stage firms.

H₆ stated that firms in maturity stage would have lower corruption than firms in Decline stage. Sub-equation dividend shows a positive effect of free cash flow toward dividend for both stages. Increasing the rate of free cash flow by one unit will increase dividend by 0.1284 for maturity stage firms and by 0.1743 for decline stage firms. However, the difference of coefficient is statistically insignificant.

Sub-equation leverage shows a positive effect of free cash flow to leverage at 0.0126 and 0.2095 respectively. Decline stage firms have a higher coefficient than maturity stage firms. The difference

between the coefficients is statistically significant at 1% significance level. The result suggests that free cash flow has more power in explaining leverage than dividend in maturity and decline stage firms.

Table 6: Wald Test: Testing of Hypothesis 4, 5, and 6

H₄: Firm in Star Stage Will Have Lower Corruption Than Those in Maturity Stage								
	Star			Maturity			Chi-square	
Endogenous Variable: Dividend								
Hypothesis	β_{54}	+	β_{55}	<	β_{56}	+	β_{57}	1.7844
Result	0.186	+	0.0022		0.1329	+	-0.0045	
			0.1882	>	0.1284			
Endogenous Variable: Leverage								
Hypothesis	β_{64}	+	β_{65}	<	β_{66}	+	β_{67}	1.0157
Result	-0.0008	+	-0.0027		0.0059	+	0.0067	
			-0.0035	<	0.0126			
H₅: Star Stage Will Have Higher Corruption Than Those in Decline Stage								
	Star			Decline			Chi-square	
Endogenous Variable: Dividend								
Hypothesis	β_{54}	+	β_{55}	>	α_5	+	β_{59}	0.0244
Result	0.186	+	0.0022		0.1776	+	-0.0033	
			0.1882	>	0.1743			
Endogenous Variable: Leverage								
Hypothesis	β_{64}	+	β_{65}	>	α_6	+	β_{69}	70.936 ***
Result	-0.0008	+	-0.0027		0.2129	+	-0.0034	
			-0.0035	<	0.2095			
H₆: Firm In Maturity Stage Will Have Lower Corruption Than Those in Decline Stage								
	Maturity			Decline			Chi-square	
Endogenous Variable: Dividend								
Hypothesis	β_{56}	+	β_{57}	<	α_5	+	β_{59}	0.2561
Result	0.1329	+	-0.0045		0.1776	+	-0.0033	
			0.1284	<	0.1743			
Endogenous Variable: Leverage								
Hypothesis	β_{66}	+	β_{67}	<	α_6	+	β_{69}	70.1144 ***
Result	0.0059	+	0.0067		0.2129	+	-0.0034	
			0.0126	<	0.2095			

***) 1% significance level

The discussion section will focus on the effects of free cash flow toward dividend and leverage on each firm stage that shows significant differences. Based on Wald test result, the research will discuss the corruption levels among stages.

The effects of free cash flow to dividend for Growth stage firms are positive and higher than star stage. However, the Wald test shows that there is no difference between coefficients. The effect of free cash flow to leverage shows negative results for growth stage and star stage firms, and the difference among coefficient is not statistically significant. The result fails to reject the null hypothesis and suggests that the effect of free cash flow toward dividend and leverage on firms in growth stage and star stage firms is equal to zero.

The effect of free cash flow to dividend on growth stage and maturity stage firms shows a positive result. The difference between coefficients is also statistically significant. The result indicates that maturity stages firms increase their dividend with lower level than growth stage when their free cash flow increases. Firms in maturity stage will have low growth and high cash flow. Maturity stage firms suffer from expropriation of cash flows because they have a lack of investment opportunity. Meanwhile, the effect of free cash flow to leverage between growth stage and maturity stage firms has a surprising result. Growth stage firms use less leverage if their free cash flow increases and suggest that internal financing is cheaper than using debt as financing resources. Maturity stage firms will use more leverage as their free cash flow increases, and hinder the manager’s corruption on free cash flow. The result suggests that dividends are more reliable as corruption control than leverage because dividends directly increase the shareholders wealth and lower the ability of the managers to use free cash flow in their own interests.

Meanwhile, the use of leverage as a control mechanism on managers' corruption is useful in Maturity stage firms because as the effect of free cash flow toward leverage is positive. The managers of Maturity stage firms should depend less on using free cash flow as debt collateral. If they increase leverage as free cash flow increase, managers have a greater chance to expropriate free cash flow for their own interests. Therefore, this research concludes that despite contrary results between dividend and leverage, maturity stage firms have higher corruption levels than growth stage firms. The argument also supported by the findings of Mahadwartha and Ismiyanti (2007) that found the managers in high growth firms are more sensitive to free cash flow than low growth firms. The result also indicates that dividend and leverage are reliable as micro corruption control mechanisms although dividends are more appropriate in maximizing shareholders wealth.

The result of Growth versus decline stage firms shows a support for the hypothesis, especially for sub-equation leverage. Sub-equation dividend is not significant, and leads to the conclusion that the effect of free cash flow toward dividend on growth and decline stages is equal to zero. However, on sub-equation leverage the result reveals strong support for the contention that growth stage firms have higher corruption levels than decline stage firms. The managers of growth stage firms decrease their leverage to increase their chance of expropriating an increasing rate of free cash flow. Leverage is a free cash flow reduction mechanism, so decreasing leverage gives managers sufficient free cash flow to expropriate.

Hypothesis four tests show less supports for the argument that firms in star stage will have lower corruption than that of firms in maturity stage. The difference of the effect of free cash flow to dividend and leverage is statistically insignificant. The result is insufficient to state that star stage firms have lower corruption levels than maturity stage firms. The result fails to reject the null hypothesis and suggests that the effect of free cash flow toward dividend and leverage on firms in star stage and maturity stages equals zero.

The different effect of free cash flow to dividend on star stage and decline stage firms is not significant. Results show less supported for dividends as bonding to free cash flow and suggests that the effect of free cash flow to dividend on star stage and decline stage firms equals zero. However, the results show impressive results on the effect of free cash flow toward leverage. The firms in star stage will lower their leverage as free cash flow increases, and indicate that bonding from leverage hampers the expropriation of free cash flow by managers. Therefore, managers will decrease the leverage levels in order to minimize the obligation to pay debt holders, as free cash flow increases. As for decline stage firms, the increasing rate of free cash flows will immediately be used as debt collateral and increase their chance of convincing debt holders of their ability to pay leverage. This result indicates that star stage firms have higher manager corruption than decline stage firms.

The different effect of free cash flow toward dividends on maturity stage and decline stage firms is not statistically significant. This research fails to reject null hypothesis on sub-equation dividend. Based on dividends as bonding mechanism, this research concludes that there is no effect of free cash flow toward dividends on maturity and decline stage firms. The result on the effect of free cash flow to leverage shows support for the hypothesis. Maturity stage firms will use less leverage than decline stage firms when their free cash flow increases, therefore the managers chances to expropriate the free cash flow for their own interest. Meanwhile, as free cash flow increases, decline stage firms have more convictions to use free cash flow as debt collateral, and convince debt holders to increase their investment to the firms. The managers of decline stage firms will have more resources (magnitude and alternative) to fund their firms as free cash flow increases. The result shows supports for the argument that maturity stage firms have higher corruption levels than decline stage firms.

CONCLUSION

The research objective of this paper is to determine which firm life cycle stage has higher manager corruption. This research tests the hypotheses based on the stages: growth, star, maturity and decline. The research uses Generalized Methods of Moment (GMM) and a combination of Wald Tests to verify the hypotheses.

The results show that dividends are more reliable as corruption control than leverage because of its direct effect on shareholders wealth. Dividends lower the ability of managers to expropriate free cash flow. Leverage as a control mechanism will be useful in maturity stage firms because as the effect of free cash flow toward leverage is positive. The managers of maturity stage firms should depend less on free cash flow as debt collateral. This research concludes that despite contrary results between dividend and leverage, maturity stage firms have higher corruption level than growth stage firms. The results also indicate that dividend and leverage are reliable as private level corruption control mechanism.

The managers of growth stage firms decrease the level of leverage to increase their opportunity to expropriate free cash flow. Meanwhile firms in star stage will lower their leverage as free cash flow increase. Managers of star stage firms will decrease the level of leverage in order to minimize the obligation to pay debt holders. This finding indicates that bonding from leverage hampers the expropriation of free cash flow by managers. Meanwhile, for decline stage firms, the increasing rate of free cash flow will immediately be used as debt collateral to convince debt holders of their ability to pay leverage. This result indicates that star stage firms have higher manager corruption than decline stage firms.

Maturity stage firms use less leverage than decline stage firms when free cash flow increases. Therefore the managers have sufficient opportunities to expropriate free cash flow. Meanwhile, for decline stage firms, as free cash flow increases, they will have more convictions to use free cash flow as debt collateral. The managers of decline stage firms will have more financial resources as free cash flow increases. The research concludes that maturity stage firms have higher corruption level than decline stage firms.

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MULTIDIMENSIONAL PERFORMANCE MEASUREMENT IN ISLAMIC BANKING

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ABSTRACT

Most of the studies that have examined management accounting practices have done so irrespective of the nature and characteristics of organizations. Little is known about the impact of the difference in the nature of organization on management accounting practices. Hence, this study investigates the impact of the nature and characteristics of organizations on management accounting practices, in particular on non-financial performance measurement practices in the banking sector. Several Islamic Banks have been selected in the Gulf Cooperation Council (GCC) countries in order to explore the impact of the nature and characteristics of these institutions on management accounting practices. This study reveals that the nature and characteristics of organization have a great impact on performance measurement practices in different Islamic banks.

JEL: G21, G24, M21, M31

KEYWORDS: Islamic Banking, management, accounting practices

INTRODUCTION

Interest in multidimensional performance measurement has grown rapidly in recent years as evidenced by the increased number of literature investigating the topic. The increased attention to such measures not only by academics but also by businessmen, managers and consultants reflects the pressure resulting from a rapidly changing business environment and increased competition. The implications of non-financial success factors are emerging in a highly competitive business environment. These receive more emphasis in service organizations that achieve the benefits of performance measurement.

The dynamically changing environment in which organizations operate has rendered it essential for organizations to modify their strategies to respond to the changing environment. Globalization, intense competition, growth of the financial industry, and a heightened need for consistent accounting information systems have been of an increasing interest in the development of alternative approaches to management accounting (MA) and performance measurement (PM) systems. Management accounting (MA) practices are increasingly being used for measuring multidimensional aspects of firm performance. However, little is known about such practices in the service sector and even less is known about the practices in developing countries. Although much has been written about the need for accurate multi-dimensional performance measures, comparatively little is known about the role of management accounting in measuring non-financial performance measurement (NFPM) in services. This study aims to investigate the impact of the nature and characteristics of organizations on non-financial as well as financial performance measurement in the highly competitive financial industry with particular reference to Islamic banking.

The paper is organized as follows: Section 2 briefly reviews the literature as a means of stating the current problem. Section 3 identifies the research methodology. Section 4 reports on the practices of management accounting in performance measurement in Islamic banks in the Gulf Cooperation Council (GCC) countries. Section 5 provides summary and conclusion.

LITERATURE REVIEW

Performance measurement has been traditionally used as control means to assess whether organizations have met their financial goals. Performance measurement systems were a means of exercising control and meeting financial goals in hierarchical manufacturing organizations (Nanni et al., 1990). However, contemporary business environments have led organizations to change their traditional management control patterns (Otley, 1994).

The rapid globalization, intense competition, growth of the financial industry, and a heightened need for consistent accounting information systems have been of an increasing interest in the development of alternative approaches to management accounting and performance measurement systems. The dynamically changing environment in which organizations operate has rendered it essential for organizations to modify their strategies to respond to the rapidly changing environment. A growing realization of the limitations of traditional MA systems has led to the examinations of multidimensional PM practices such as non-financial techniques. One of the major developments in the area of PM during this period was Kaplan and Norton's (1992) Balanced Scorecard that concentrates not only on financial performance measures but also on non-financial measures.

Management accounting needs to help firms to enhance cross-functional communication, integration and cooperation in order to help organizations' management face the deep competitive changes that have occurred in the last decade and carry out the customer orientation needed. In such a need, the scope of MA has widened towards effectiveness, control, market analysis, quality assessment, customer satisfaction empowerment, and competitive status management (Ostinelli and Toscano, 1994).

Several studies have found that traditional financial directed PM models were becoming increasingly inadequate in meeting the complex and competitive nature of the new business environment (Kaplan, 1983; Kaplan, 1984; Bromwich and Bhimani, 1989; Nanni et al., 1990; Govindarajan and Shank, 1992; Lee, 1992; Kaplan and Norton, 1992; Neely et al., 1995; Shields, 1997; Sim and Koh, 2001; Anderson and McAdam, 2004; Neely, 2005; Gomes et al., 2006). The needs for multidimensional performance measures that focus on different dimensions both financial and non-financial have been demonstrated by the results of several studies (Johnson and Kaplan, 1987; Fitzgerald et al., 1991; Eccles et al., 1992; Govindarajan and Shank, 1992; Kaplan and Norton, 1992; Euske et al., 1993; Gregory 1993; Henri, 2004; Powell, 2004; Najmi et al., 2005). Few studies have examined management's experience regarding the success of using performance measurement initiatives (Bourne et al., 2002; Halachmi, 2002; Tangen, 2004; Cinquini and Mitchell, 2005). It was suggested that the use of traditional performance measures such as return on investment or net earning distract from non-financial factors such as efficiency and effectiveness, productivity, product quality, market share, customer satisfaction, and employee satisfaction. At the same time the inadequacy of the performance measures based on traditional management accounting methods has highlighted the need for more advanced management accounting systems (MAS). Hence, it was recommended that multidimensional performance measures should lead to appropriate actions in supplementing or replacing traditional techniques (Lynch and Cross, 1991; Kaplan and Norton, 1996; Kaplan and Norton, 2001; Otley, 1999).

Therefore, non-financial performance measurement has received considerable attention from contemporary management accounting scholars. There is a view that non-financial measures are needed as a predictor of an organization's long-term performance as they help managers monitor and assess their firm's progress towards strategic goals and objectives (Kaplan and Norton, 1996; Kaplan and Norton, 2001). There are several studies that have dealt with non-financial performance measures without discussing the critical issues of the actual practices of NFPM (Scapens, 1997; Hiromoto, 1988; Ezzamel, 1992; Turney, 1991). Other studies recognize impact of organizational and strategic change on management accounting and performance measurement (Neely et al., 2000; Kennerly and Neely, 2002; Rouse and Putterill, 2003; Anderson and McAdam, 2005; Hassan 2005).

Furthermore, According to Acton and Cotton (1997) there should be no fundamental difference between analyzing the costs for manufacturing support departments and the costs for the support activities of service organizations. However, Modell (1996) investigates the accounting control implications of various characteristically perceived organizations, based on the framework of Ansari (1977), in order to distinguish services from manufacturing. Modell also constitutes a framework for further research into the relative balance between formal and informal control and how this relates to the various service characteristics. Euske et al. (1998) provide a comprehensive approach for developing and applying activity-based PM system to different services processes within organizations; they discuss the different applicability of services processes, support as well as operational, from manufacturing organizations. Likewise, other studies (Hussain and Kock, 1994; Hussain and Gunasekaran, 2001) discuss the need for ABC in service organizations and, particularly, in the financial industry.

The nature and characteristics of the business, i.e. size, kind and type, determine the range of possible change and adaptation to the economic climate (Karimi et al., 1996; Long, 1995; Thompson, 1967). Fitzgerald et al., (1991) classify three service process types. According to Mills and Sweeting, (1988), service costing differs from one type to another. Brignall et al., (1991) found that cost traceability varies systematically, as does the PM system, in the three different service process/types (mass, shop and professional). Brignall (1997) argues that, on the basis of the Process Type Theory of Silvestro et al. (1992) and Fitzgerald et al. (1991), business strategy should link with effective PM systems. Moreover, some studies drew relationships between external environmental factors and managers' need for financial and non-financial information (Modell 1996 and 1995; Brignall et al. 1992; Brignall and Modell 2000; Cobb et al. 1995).

The service production process of banks differ from other service types and substantially diverge from manufacturing organizations because of obvious factors such as the indispensability of customers to the organizations' production process (mills and Morris, 1986), strict governing by the central bank (CB), the size of the organization, and the exact line of business they are in, among others. Hence, it is more difficult to identify non-financial indicators (NFI) in services organizations as opposed to their manufacturing counterparts. Thus, many service organizations, especially banks find it harder to incorporate customer opinions, a NFI, into service production process in order to enhance the quality due to its intangible and transistor nature. Moreover, although it is harder to incorporate non-financial MA measures in service companies, Cobb et al (1995) demonstrated that activities, like the monitoring of bad loans, initiated significant changes in management accounting systems.

Considering the strong competition faced by banks and the uncertain economic conditions that slow down banks' operation faster than other business, management are forced to direct their attention more to improve and measure financial performance than to non-financial performance. Thus the business kind has to be taken into account. In a turmoil of economic conditions, banks are not only affected by the central bank's regulation but also by the amount of deposit as well as pay back from borrowers that fall down by adverse economic conditions, since these are the major inputs and outputs of banks. The results of such slow down affect banks more quickly than other business organizations that could keep producing the tangible products by making use of its human and other resources in the future. Garnaut (1998) stated "Recession turn good banks into bad banks". It was found that all financial performance measures (interest margin, expense/income, return on assets and capital adequacy) are positively correlated with customer service quality scores among Australian financial institutions (Duncan and Elliott, 2004). While, Nielsen et al. (2000) show that financial institutions are increasingly integrating management accounting systems with customer-related activities thus enabling customer profitability analysis. Other studies examined management accounting practices in financial institutions (Oldenboom and Abratt, 2000; Hussain et al., 2002; Hussain, 2005; Wei and Nair, 2006).

Moreover, it is established that strategy is closely linked with the long-term plans of top management, and in this case the kind of business has effect on long-term planning. The possible strategy that management can establish in a given time, the objectives to carry them out until the fulfillment of chosen strategies, all have significant impact on non-financial performance measurement. Tapinos et al. (2005) indicate that performance measurement stands as one of the four main factors characterizing the current practice of strategic planning. It was found that the great majority of banks responded to changes in growth opportunities through diversification moves but no clear link to core capabilities (Batiz-Lazo and Wood, 2001).

Banks have to function under the regulation of central banks, which determine their policy in order to stabilize financial market and strengthen economic condition. As a result, banks encounter difficulties in making long-term plan for performance measurement. Considering the difficulty with long-term plan and strategy, the objectives of non-financial performance (NFP) are jeopardized, and accordingly, the PM practice hampered. When organizations are not able to make long-term plans then it is hard to enhance non-financial PM, because NFP are meant to achieve competitive advantages of business and that depends on the long-term strategy and vision of organizations.

According to service process type, banks are considered one type. Therefore, the importance of 'type' does not hold particular significance. However, the special nature and characteristics of Islamic banking may result in the type of business having an effect on management practices. Therefore, this study starts

with the notion that nature and type of business, i.e. Islamic banking, is the biggest influencing factor on PM practice.

The literature reveals that most of the studies that examined non-financial performance measurement focused their research on manufacturing and industrial sector, with a fewer number of studies concentrating on service industry (Fitzgerald et al., 1991; Brignall, 1997; Ballantine et al., 1998; Hassan, 2005; Mohamed and Hussain; 2005; Mukherjee and Nath, 2005). Comparatively little is known about the role of management accounting in performance measurement in practice in developing countries, particularly in the Islamic banking sector. This is at a time when performance measurement is receiving greater attention in both manufacturing and service organizations.

RESEARCH METHODOLOGY

Considering the importance of MA and PM in ensuring the successful implementation of an organization's strategy and the little research of these practices in emerging economies, the objective of this paper is to study the performance measurement practices in one emerging economy, namely GCC countries, and particularly in the ever growing sector of Islamic banking. The research methodology employed to accomplish this aim is presented in this section.

To meet the objective of this study, the following issues were addressed:

- The importance banks place on measuring both financial and non-financial performance
- What is being measured and how?
- Problems encountered in measuring performance.

To answer the above stated questions the research methods relied on semi-structured interviews that took place in the corporate offices of five Islamic banks in three GCC countries, namely Bahrain, UAE and Kuwait in the period January – October, 2004. The interviewees were senior management. Each bank was visited twice and the average time for interviews per bank was about two to three hours. The questions covered an introduction to the organization, management accounting practices within the organization, and performance measurement – both financial and non-financial. Furthermore, gathering data from source such as annual reports, corporate plans, booklets, archival data, and relevant official publications were the means of collection of primary and secondary information. These secondary sources of information were useful for comparing the objectives of management with the actual management accounting practice. This allowed the identification of a gap between objective and performance, if any. The research method also included observations of operations to understand the procedures and systems of the organization and to scrutinize data.

Hence, this study applied descriptive multiple cases study rather than explanatory single case study. This was due to the unavailability of detailed information that permit explanatory study, also because multiple cases better replicate the findings than does the evidence from one or two cases (Yin, 1991). Multiple cases enable us to carry out cross-case (comparative) analysis. Thus it could be used to predict similar results (a literal replication); produces contrary results but for predictable reasons (a theoretical replication); or both literal and theoretical replication (Hussain and Hoque, 2002).

RESEARCH FINDINGS: PERFORMANCE MEASUREMENT IN ISLAMIC BANKS

This section provides the results of the analysis of the data collected. Commitment not to disclose information does not permit detailed description about the banks studied.

Bank Alfa (A Large Islamic Bank)

At the time of the study, Bank Alfa employed 1,070 employees, its average rate of return was 5% during the last four years and its average growth rate was 7%. Table 1 summarizes our key findings about Alfa.

Table 1: Performance Measurement Practices in Bank Alfa

Description	Measuring FP	Measuring NFP
Importance (of)	Very Important	Important
Practice (of)	Every Division of the Bank	Regularly
Model / Method used	Benchmarking & Activity Based Cost Management	Questionnaires & Surveys
Problem / contentment with	Lack of standards	Lack of benchmarks
Opinion / suggestions to improve the method of PM	Developing a set of standards	Developing benchmarking model

This table shows the performance measurement practices in Bank Alfa. The second column shows the response of bank managers to measuring financial performance and the third column indicates the importance placed on measuring non-financial performance.

Managers of bank Alfa acknowledged the importance of both financial and non-financial measures noting they were both important for the growth and profitability of the bank. They use a mix of benchmarking process and activity based cost management (ABCM) to measure financial performance. Though, Management admit having difficulty in evaluating the results achieved due to the lack of accounting standards that are tailored especially to the meet the special nature of operations in Islamic banking and they also point out that the size of the bank is an important factor when performance is measured. A senior executive of the bank stated that “PM is affected by the size of the bank. Since the bigger we are the more diverse are our services. However, that is not a problem in itself. That is the nature of our bank. The bigger you are, the more investors trust you, and the more transaction you have”. Thus, it was observed that management of Alfa are experiencing problems with measuring FP accurately. They emphasized the need to modify standards used to make the use of benchmarking and ABCM more meaningful. However, they failed to point out exact ways to modify the standards and methods used.

Alfa’s Management stated that NFP is measured regularly and it is important to top management. Many aspects of NFP are considered for measurement, customer satisfaction and quality of services are in high priority. Quick response and on time services are also important factors to managers. Managers in Alfa use questionnaires and customer surveys to measure NFP. An executive of the bank has pointed out that “We regularly measure non-financial performance and we aim to satisfy our customers by providing quality service”. Though, he emphasized the fact that top management view financial performance to be of more important than non-financial. He mentioned that the well being of the bank which is non-financial is directly related to the banks ability to strengthen its financial position in the highly competitive market in order to provide better services to its customers. It was noted that while managers are well satisfied with and do not have any problems the methods being used to measure NFP, they are trying to improve their non-financial performance measurement by developing a system that allow them to benchmark NFP. A senior executive pointed out “management is currently focusing on building a database that would allow us to use benchmarking to measure both financial and non-financial performance”.

Bank Bravo (A Small Islamic Bank)

At the time of the study, Bank Bravo employed around 130 staff. During the last five years, its growth rate was approximately 4% and had an average rate of return of 5%. Key findings are summarized in Table 2.

Management of Bank Bravo focus their attention on NFP measures, hence it is measured on monthly basis, and measures used include quality control, customer satisfaction, social well being and quick response. While financial measures are seen as less important and measured semi-annually using benchmarking and ratio analysis. The reason financial measures are overshadowed by non-financial ones in Bravo is management’s believe that as a service organization they should be more oriented towards customers’ satisfaction rather than profit. They also highlighted that the nature of Islamic banking necessitates the good service of customers rather than profit making. They also emphasized that their utmost priority is maintaining their reputation. It was observed from the actions and words of top managers at bank Bravo that their attitudes were different from their counterparts in the other four banks. The CEO of Bravo has mentioned that “financial performance is derived by non-financial performance”. He believes that the bank’s aim should be to attain good reputation as a bank that cares about its social

well being. He stated “when customers are satisfied with our services and contribution to the Islamic world, we stand to gain financially”. Managers believe that their financial position will be strengthened by the fact that they have a reputation for charging fair prices for their services. The bank’s CEO stated “we have to provide other services in the time necessary, in other words, we have to keep up with our competitors. We had to offer services that do not bring fees revenues in order to satisfy our clients. For instance we provided paying bills, e-banking, and phone banking features in order to fight competitiveness from other banks”.

Table 2: Performance Measurement Practices in Bank Bravo

Description	Measuring FP	Measuring NFP
Importance (of)	Important	Very Important
Practice (of)	Every division of the Bank	Monthly
Model / Method used	Budgeting & Ratio analysis	Questionnaires & Surveys and Direct Interviews
Problem / contentment with	A bit problematic (lack of accuracy)	None
Opinion / suggestions to improve the method of PM	None	None

This table shows the performance measurement practices in Bank Bravo. The second column shows the response of bank managers to measuring financial performance and the third column indicates the importance placed on measuring non-financial performance.

Managers of Bank Bravo are well satisfied with the accuracy of the present non-financial performance measures models. They emphasized the fact that several reports show the bank as one of the top organizations in the country when it comes to customer service. They view this as a testimony to the success of the measures used to measure NFP. Hence, they stated that there was no need to change anything. Though, it was stated that the accuracy of financial measures might not be so accurate. The financial controller of the bank said “the issue of performance measurement gets complicated when more subjective matters are involved. In the case of the budget, the actual figures from last year are easily incorporated, but when it comes to the forecasts of next year, we may have a problem here since they may not be 100% correct”. He elaborated further by stating “The problem is not in the budget system itself. The problem is more with getting accurate reliable financial information”. When the issue was discussed with top management, they stated their intention to improve the way FP is measured, though they point out that the nature of Islamic banking makes accurate measurement of financial performance “a bit problematic”. Still the bank seems to focus more on NFP measures as means of sustaining its current position.

Bank Charlie (A Medium-Size Islamic Bank)

At the time of the study, Charlie employed approx. 207 employees, its average growth rate for the last three years was 5.3%, and its average rate of return for the last four years was 4.2%. Table 3 summarizes key findings about Bank Charlie.

As revealed in table 3 Bank Charlie’s top management recognize the need of financial performance, they give high priority to measuring FP in every department of their bank. They believe doing so will allow them to keep their place in the business and survive. They rely on analyzing financial statements with particular emphasis on income statement; their main concern is to measure profit and assets growth. They also measure their financial performance is by comparing the budgeted results with the actual ones, through the master budget. However management find the budgeting method “somewhat problematic”, due to the possibility of wrong estimation. The financial controller of the bank stated that “we focus on income statement and balance sheet. Our focus is on the measurement of profit and losses and the growth rate of assets. Hence, performance measurement in the bank is primarily financial”.

Non-financial performance has hardly been given any importance by the top management of Bank Charlie. Even though management admit that customer satisfaction and on time quality services are essential to keep their customers, they admit that non-financial performance is not measured. Management hope to develop a system that could be used to measure non-financial performance in the

future. The CEO stated that “we are in the process of improving the way we measure our financial and non-financial aspects. We are in the process of coming up with a system that will facilitate the input of data and output of all reports required. This system is hoped to be a reliable system”.

Table 3: Performance Measurement Practices in Bank Charlie

Description	Measuring FP	Measuring NFP
Importance (of)	Very Important	Low importance
Practice (of)	Every section of the bank	Rarely
Model / Method used	Financial Statements & Master Budget	None
Problem / contentment with	Somewhat Problematic (wrong estimates)	None
Opinion / suggestions to improve the method of PM	Develop evaluation model	Develop evaluation model

This table shows the performance measurement practices in Bank Charlie. The second column shows the response of bank managers to measuring financial performance and the third column indicates the importance placed on measuring non-financial performance.

Bank Delta (A Medium-Size Islamic Bank)

At the time of the study, Delta employed between 195-210 staff. During the last five years, its growth rate was approximately 6% and with an average rate of return of 8.7%. Table 4 Summarizes key findings.

Table 4: Performance Measurement Practices in Bank Delta

Description	Measuring FP	Measuring NFP
Importance (of)	Very Important	Somewhat Important
Practice (of)	Every section of the organization	Regularly
Model / Method used	Benchmarking & Ratio Analysis	Questionnaires
Problem / contentment with	Lack of standards	None
Opinion / suggestions to improve the method of PM	Establish Islamic banking standards	Training Employees

This table shows the performance measurement practices in Bank Delta. The second column shows the response of bank managers to measuring financial performance and the third column indicates the importance placed on measuring non-financial performance.

Management of Bank Delta put high emphasis on measuring financial performance in each division of the bank. The method that they usually use to measure their financial performance is by using ratio analysis that is used to compare results against pre-determined benchmarks. Management do not have any difficulty or problems with the models that they use and they are satisfied with the results achieved. The CFO of the bank stated “we use the benchmarking model. In the sense we set a budget and evaluate things based on it. This is mainly used for financial performance aspects”. Moreover, he emphasized the problems encountered in the Islamic banking sector by saying “The major problem for financial performance in Islamic banks is the fact that we do not have a coherent accounting standards framework. This is very confusing because we have to revert to the International Accounting Standards (IAS) in dealing with transactions that are not covered by the Islamic accounting standards issued by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI)”.

The non-financial performance of Delta is seen as important but somehow less important than as the financial performance. Many aspects of NFP are measured regularly; customer satisfaction and quality of services are in high priority. Managers in Delta use questionnaires to measure NFP. An executive of the bank stated that “customer satisfaction, commitment, on time quality services are essential in the services provided by the commercial branches. If a customer is not satisfied, they will withdraw deposits which will decrease our modarabah fees”. Although management are satisfied with the methods used and do not have any problems, they are trying to improve their non-financial performance by providing further training to their employees.

Note: Modarabah is a form of business contract in which one party brings capital and the other personal effort. The proportionate share in profit is determined by mutual agreement at the start. But the loss, if any, is borne only by the owner of the capital, in which case the entrepreneur gets nothing for his labor.

Bank Echo (A Large Islamic Bank)

At the time of the study, Echo employed 1,300 employees, its average rate of return during the last five years was in the range of 7-8%, and the average growth rate was between 10-11% during that time. Table 5 summarizes key findings about bank Echo.

Management of Bank Echo place almost equal emphasis on both financial and non-financial performance measurement. However they admitted their primary concern was financial rather than non-financial measures. That was due to putting more emphasis on profit as it seen to reflect the success of the bank in increasingly competitive sector. A senior executive of the bank stated “Our main concern is income statement. Profit measurement is an essential in measuring financial performance. We need to maintain our position in the increasingly competitive market and we can only do so if we maintain our levels of profitability and improve on it”. He admitted that the only problem they encounter in measuring financial performance is the comparison drawn with conventional (Non-Islamic) banks due to the different nature of the two types of banks. He further stated “The problem is not the input and the building of a model to help measure performance; the problem is the difference in accounting standards between banks due to the nature of Islamic banking. In fact, the comparison between the financials of Islamic banks and conventional ones may not be accurate because of the aforementioned differences”.

Table 5: Performance Measurement Practices in Bank Echo

Description	Measuring FP	Measuring NFP
Importance (of)	Very Important	Very Important
Practice (of)	Every Division of the Bank	Regularly
Model / Method used	Benchmarking & Ratio Analysis	Monthly Performance Appraisals & Surveys
Problem / contentment with	None	None
Opinion / suggestions to improve the method of PM	None	None

This table shows the performance measurement practices in Bank Echo. The second column shows the response of bank managers to measuring financial performance and the third column indicates the importance placed on measuring non-financial performance.

Meanwhile, non-financial performance is measured through customer satisfaction, quality control, and quick response. They reported that NFP is measured on regular basis in order to maintain high standard of customer service that enables Echo to maintain its leading share in the Islamic banking sector. An executive of the bank stated that “Quick repores is a basic issue, we must meet the deadlines given. We consider we have failed if we do not provide the quick response necessary”. He further emphasized “customer satisfaction is a very important factor in our success in a highly competitive market”. It was noted that management of the bank use customer survey to measure customer satisfaction as it is viewed as an easy tool to use to measure non-financial performance. Management of Echo appeared well satisfied with the accuracy of their performance measurement models both financial and non-financial. However, it was observed that though management of Echo appeared to be concerned with the social well being aspect of non-financial performance, there was no defined model or measure that was used to measure such aspect of performance.

Comparative Analysis

Findings of the study, as summarized in table 6 and 7, reveal that all of the five banks acknowledged the importance of measuring financial performance. While only one of the five stated that measuring non-financial performance was of more importance to them than measuring financial performance. Benchmarking and ratio analysis are used in three out of the five banks for measuring financial performance. While, budgeting is used in two of the banks, activity based cost management and financial statements are used to measure financial performance in only one of the banks. It is important to note that

the two banks that are using budgets reported problems with the model in terms of wrong estimates and instead of trying to use different models, they resort to finding the cause of variances and deal with it. Moreover, the concept of benchmarking with best practice organization seems to be problematic in all banks due to the lack of clearly set of standards for Islamic banking. Management think that comparing the bank’s performance with that of a more conventional bank is not appropriate due to the difference in nature and objectives of both types of banks.

The study has also found all but one of the banks studied realize the importance of measuring non-financial performance. Only one of banks indicated that non-financial performance is of more importance than financial performance; while one other bank sees NFP of equal importance to FP; the remaining banks place it at lesser importance than FP. Still four banks reported using some models to measure the non-financial aspects of their performance. Quality control and customer satisfaction seem to be the most important factors in measuring non-financial performance. Banks seem to relate these two factors to financial performance, hence the attention paid to them. The organization’s well-being and social reputation seem to be an important aspect to all these four banks.

All but one of these four banks stressed their satisfaction with the models used, and only that firm expressed interest in trying to train their staff and finding better models for measuring non-financial performance. There seem to be a great deal of contention with traditional methods and a lack of interest in trying to apply more advanced management accounting systems.

On the other hand, only one of the five banks studied revealed that non-financial performance measurement is of insignificant importance to them. Management of that bank seemed only interested in financial performance measures. They view financial performance as the key for their existence and fighting competition. Nevertheless, it is interesting to note that management of that bank realizes the importance of customer satisfaction in keeping customers. Therefore, they emphasized their hope to be able to use non-financial performance measures in the future.

Table 6: Comparative Analysis Based on Financial Performance Measurement

Description	Bank Alfa	Bank Bravo	Bank Charlie	Bank Delta	Bank Echo
Importance of FPM	Very important	Very important	Very Important	Very important	Important
Practice of FPM	Every division of the bank	Every division of the bank	Every division of the bank	Every division of the bank	Every division of the bank
Model that is used	Benchmarking & Ratios analysis	Master budget & Financial Statements	Benchmarking & Ratios analysis	Benchmarking & Activity Based Cost Management	Budgeting & Ratios analysis
Problems faced with Models	Lack of standards	Somewhat problematic (Wrong estimation)	None	Lack of standards	A bit problematic (lack of accuracy)
Suggestions to improve the FPM Model	Developing set of standards for Islamic Banking	Develop evaluation model	None	Developing set of standards for Islamic Banking	None

This table shows the comparative analysis on measuring financial performance across all five banks

Table 7: Comparative Analysis Based on Non-Financial Performance Measurement

Description	Bank Alfa	Bank Bravo	Bank Charlie	Bank Delta	Bank Echo
Importance of NFPM	Somewhat important	Low importance	Very Important	Important	Very Important
Practice of NFPM	Regularly	Rarely	Regularly	Regularly	Monthly
Model that is used	Questionnaires	Questionnaires, and Direct Interviews	Monthly appraisal / Surveys	Questionnaires/ Surveys	Questionnaires, Surveys, and Direct Interviews
Problems faced with Models	None	None	None	Lack of benchmarks	None
Suggestions to improve the NFPM Model	Training employees	Develop evaluation model	None	Developing benchmarking model	None

This table shows the comparative analysis on measuring non-financial performance across all five banks

SUMMARY AND CONCLUSION

The main objective of this paper was to study management accounting practices and performance measurement in the Islamic banking sector in GCC countries. Results from the multiple-case study suggest that both financial and non-financial measures played a role in performance measurement in the Islamic banking sector in GCC countries. However, the significance of the role played by these measures is subject to scrutiny, as there seem to be no institutionalized perspective of the equal importance of both financial and non-financial performance measures. There seem to be a tendency to think that financial performance measures could more significant importance. The significant important of using either or both types of measures is left to management views and discretion. Also, there appear to be a gap between the perception of the best practice that should take place and the actual practice taking place, particularly in the case of non-financial performance measurement. Also, the size of the bank does not seem have to a significant effect on performance measurement practice.

The data in this study came from five Islamic banks operating in the GCC countries; therefore any generalization of its results to the GCC Islamic or general banking sector or beyond cannot be made without considerable caution. However, due to the limited number of Islamic banks operating in the region, the results of this study can give us an indication of the trends that help formulate hypotheses. Applying the common mode of analysis in a cross-case comparison means that this study was able to make a meaningful comparison of the role of management accounting practices in performance measurement both financial and non-financial. Consequently, lessons were learned about management and organizational factors that may influence the choice of performance measurement practices. This points the way to several directions for further research, other banks could then be studied to verify the practices in the Islamic banking sector and other sectors.

Other issues in multidimensional performance measurement remain to be studied. This study was conducted in a single sector; a cross-sector research would be worth considering for the exploration on performance measurement practices in different environments. Considering the dynamics of micro and macro environments, it would be interesting to demonstrate the changing attitude of management measuring multidimensional aspects of performance.

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BIOGRAPHY

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EVIDENCE ON HEDGE RATIOS CHANGES AROUND THE SUBPRIME MORTGAGE CRISIS

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ABSTRACT

During the subprime mortgage crisis period, the New Century Financial Corporation was the biggest subprime mortgage lender in the United States and declared bankruptcy on April 2, 2007. This paper compared two types of hedge ratios--the hedge ratio before April 2, 2007 and the hedge ratio after April 2, 2007. We applied the hedge ratios of American, British, Canadian, German, Hong Kong and Japanese stock futures markets to examine the hypothesis. It is shown that the serious subprime mortgage crisis has led to a greater average hedge ratio in all six markets and the average hedge ratio has had a more obvious change in America, Britain, and Hong Kong. In other words, the results show that when the investors are in the asymmetry return of the financial assets they are inclined to weigh adverse evidence more heavily. The results are consistent with the findings of Lien (2005). These findings are helpful to risk managers dealing with stock index futures in the above markets.

JEL: G01, G15

KEYWORDS: Hedge ratios, Subprime mortgage crisis, DCC-GARCH

INTRODUCTION

The aim of hedging is to use futures markets to reduce a particular risk. The risk might relate to a foreign exchange rate, the level of the stock market, or some other variable. Generally, hedging may be divided into three types. First, a perfect hedge is one that completely eliminates the risk. Perfect hedges are rare. Secondly, a short hedge is a hedge that involves a short position in futures contracts. A short hedge is appropriate when the hedger already owns an asset and expects to sell it at some time in the future. Thirdly, hedges that involve taking a long position in a futures contract are known as long hedges. A long hedge is appropriate when an investor knows it will have to purchase a certain asset in the future and wants to lock in the price now. According to the situation of the market an investor can adopt any one hedging ploy to reduce the risk of the investment. In other words, hedging employs long-short strategies to reduce the variance of risk at the same time. One example is when an investor holds stocks he can adopt a short position on futures to offset risk. Hence, the measure of adopting a long-short position is defined as the hedge ratio, which represents the investor's attitude for future risk. Generally speaking, when the market trend is stable, the hedge ratio will become smaller, whereas if a big fluctuation of the market takes place it will get bigger.

Formerly, research about hedge ratios has overemphasized looking for the best value or comparing the models of the hedge ratio. For example, Park and Switzer (1995) estimated the risk-minimizing futures hedge ratio for three types of stock index futures: (i) S&P 500 index futures, (ii) major market index (MMI) futures, (iii) Toronto 35 index futures and the results reveal that the hedge ratio which is estimated by Bivariate cointegration GARCH is superior to the conventional ordinary least square (OLS) and OLS with cointegration (OLS-CI). Lien et al. (2002) compared OLS and constant-correlation vector generalized autoregressive conditional heteroscedasticity (VGARCH) and claimed that the OLS hedge ratio performs better than the VGARCH one. Floros and Vougas (2006) measured the hedging effectiveness of the Greek stock index futures using four different methods: (i) OLS, (ii) error correction

model (ECM), (iii) vector error correction model (VECM), and (iv) Bivariate cointegration GARCH (B-GARCH) and found that the hedge ratio from the B-GARCH model provides greater variance reduction. This result is in accordance with Park and Switzer (1995). Hsu Ku et al. (2007) applied the dynamic conditional correlation (DCC)-GARCH model of Engle (2002) with error correction terms to investigate the optimal hedge ratios of British and Japanese currency futures markets and compare the DCC-GARCH and OLS model. Results show that the dynamic conditional correlation model yields the best hedging performance. The foregoing research overemphasizes looking for the best value or comparing the models of the hedge ratio. Research on how the positive and negative news affects the hedge ratio has seldom been researched, especially when the market meets strong fluctuations.

Table1: Descriptive Statistics and Unit-root Test

Market	Category	Mean	SD	Skewness	Kurtosis	Jarque-Bera	Q(2)	Q ² (2)	Augmented Dickey-Fuller Unit Root Test	
									Price	Return
America	Spot	0.000041	0.0096	-0.2423	5.2592	115.9035**	8.8535*	15.6760**	-1.5644	-25.9329**
	Futures	0.000030	0.0095	-0.2124	5.3785	126.7308**	4.3194	13.8280**	-1.7501	-24.8900**
Britain	Spot	-0.000086	0.0112	-0.2580	5.8395	180.8098**	15.5060**	32.3260**	-1.9687	-26.8371**
	Futures	-0.000086	0.0108	-0.2734	5.3642	127.8267**	12.9080**	25.5730**	-1.9049	-26.3142**
Canada	Spot	0.000265	0.0100	-0.5118	4.8567	97.5868**	8.3023*	34.2770**	-1.5938	-25.1164**
	Futures	0.000260	0.0102	-0.5301	4.7182	88.4830**	7.8158*	29.3090**	-1.6152	-25.3746**
Germany	Spot	0.000174	0.0114	0.6507	8.2092	625.8034**	8.1869*	30.9430**	-1.2718	-24.6086**
	Futures	0.000181	0.0114	-0.6155	8.1254	603.1713**	9.7988**	29.2370**	-1.2626	-14.6658**
Hong-Kong	Spot	0.000707	0.0168	-0.1191	8.3687	626.9226**	5.6126*	124.32**	-1.4610	-24.6050**
	Futures	0.000688	0.0174	0.1230	7.7406	489.1661**	6.9011**	80.3670**	-1.4880	-25.2210**
Japan	Spot	-0.000593	0.0133	-0.5652	5.0375	117.8574**	0.8705	20.5310**	-0.6898	-23.5518**
	Futures	-0.000594	0.0136	-0.5110	4.9084	101.7331**	1.7100	22.9480**	-0.7269	-23.3021**

Notes: ** and* represent significance at the 1% and 5% levels, respectively. Q (2) and Q (2) are the LB tests for the 2nd-order serial correlations of standardized residuals and standardized squared residuals, respectively.

The main reason why financial assets generate asymmetric fluctuation is the investors' stronger reaction to negative news than to positive news. Recent research about the asymmetric fluctuation of financial assets has been too numerous to enumerate (Blasco et al., 2002; Yang and You, 2003; Balaban and Bayar, 2005; Kian and Kuan, 2006; Liao and Yang, 2008). Moreover, the hedge ratio also generates variability following the asymmetric fluctuation of the financial assets. Brooks et al. employed the FTSE100 stock index to consider the impact of asymmetry on time-varying hedges and claimed that the asymmetric model gives superior hedging performance. Lien and Yang (2007) researched ten commodity futures contracts and estimated the dynamic minimum variance hedge ratios (MVHRs) using the Bivariate GARCH model that incorporates the basis spread effect of the asymmetric fluctuation. The results show that the positive basis spread has greater impact than the negative basis spread on the variance and covariance structure and they reported the importance of the asymmetric effect when estimating hedging strategies. Lee (2008) investigated the effects of asymmetries and regime switching on the futures hedging effectiveness of the Nikkei 225 stock index futures by using an asymmetric Markov regime switching BEKK GARCH (ARSBEKK) model. The results show that when the model takes the asymmetric effect into consideration, the hedging effectiveness is improved in estimating the hedge ratio, so the hedge ratio is in connection with the asymmetric fluctuation of the financial assets. Moreover, Lien (2005) incorporates asymmetric responses to positive and negative news within a stochastic volatility

framework and the result shows that asymmetry leads to a greater average optimal hedge ratio. In another words, the hedge ratio increases with the increasing degree of asymmetry.

During the U.S. subprime mortgage crisis, large financial institutions have collapsed or been bought out. Especially, after the New Century Financial Corporation bankruptcy on April 2, 2007, which was the largest U.S. independent provider of home loans, many problems in subprime lending have emerged and the global financial markets have since felt its effects continuously (CNN Money.com). With the current unstable financial state, the returns of financial markets fluctuate widely and thus the hedging effectiveness in various markets are worthy of analysis, hence this paper investigates two types of hedge ratios--the hedge ratio before 2007 April 02 and the hedge ratio after 2007 April 02 in America (S&P 500 index), Britain (FTSE 100 index), Canada (Toronto 60 index), Germany (Frankfurt-Commerzbank index), Japan (NK-225 index[Tokyo]), Hong Kong (Hang-Seng index) We want to investigate whether the U.S. subprime mortgage crisis has led to a greater average optimal hedge ratio in these six futures markets. The empirical results show that the serious subprime mortgage crisis has led to a greater average hedge ratio in all six markets and the average hedge ratio has had a more obvious change in America, Britain and Hong-Kong. In another words, investors are inclined to weigh adverse evidence more heavily when financial fluctuation increases. The result is consistent with the empirical result for Lien (2005).

This article is organized as follows. Section II provides the DCC-GARCH model and its specification for our empirical studies. Section III reports the time series data and some descriptive statistics. Section IV includes model estimations and the results of hedging effectiveness for the markets of America, Britain, Canada, Germany, Japan and Hong Kong. Finally, Section V concludes with a discussion on the findings.

METHODOLOGY

Data and Descriptive Statistics

The data employed in this paper are obtained from Datastream and the study period is from 3 April 2006 to 31 March 2008. The index price is defined as daily spot closing and futures settlement data for each market respectively. The index returns are defined as the natural logarithms difference of the index. Table 1 lists the descriptive statistics and unit-root test for the daily index returns of each market. The mean returns are positive in America, Canada, Germany and Hong Kong and they are negative in Britain and Japan. And the skewness statistics show that all return series are negatively skewed except the spot market in Germany and the Futures market in Hong Kong. The kurtosis statistics show a departure from normality and all series are highly leptokurtic.

The Jargue-Bera (JB) statistics reject the normality for each return series. All these characters imply non-normal distributions with fatter tails. The Ljung-Box (LB) for the standardized squared residuals shows serial correlations of second moments for both the spot and futures in all the markets and serial correlations of first moments for both the spot and futures in all the markets except the sport market in Japan and the futures market in America and Japan. Therefore, it is appropriate to apply a GARCH model. Secondly, the results of the augmented Dickey-Fuller (ADF) test for the existence of a unit root are strongly rejected for log differences of both spot and futures prices, but cannot be rejected for the log level.

Model Specifications

Several studies have probed the optimal hedge ratio for stock market portfolios using stock index futures. While restricting the hedge ratio to be constant over time Engle (1982) and Bollersley (1986) estimated the optimal hedge ratio by modeling the distribution of stock index and futures changes within the generalized autoregressive conditional heteroscedastic (GARCH). Park and Switzer (1995) claim that if

the joint distribution of stock index and futures prices is changing over time, estimating a constant hedge ratio may not be appropriate. Higgs and Worthington (2004) capture the time-varying second moments of the joint distribution and use an error correction model (ECM) when co-integration occurs between financial variables. Floros and Vougas (2006) claim the M-GARCH model provides greater variance reduction. In another words, more recent papers use a variety of advanced econometric methods (i.e., ECM, VECM or M-GARCH) with or without error correction terms to estimate the optimal hedge ratios. Especially, Hsu Ku et al. (2007) conclude that the inclusion of dynamic conditional correlations (DCC) in the GARCH model can better capture the frequent fluctuations in futures markets. In this study, we incorporate a bivariate DCC-GARCH model to estimate the hedge ratios.

In this article, we use the Engle’s DCC-GARCH to estimate hedge ratios. Given the dynamic conditional correlation (DCC) model, the GARCH specification requires modeling the first two conditional moments of the bivariate distributions of s_t and f_t . In order to capture the time-varying variance and covariance, the second moment can be parameterized with a bivariate constant correlation GARCH (1,1) model. The bivariate distributions of spot and futures are assumed as follows:

$$s_t = \alpha_{0s} + \sum_{i=1}^k \alpha_{1is} S_{t-i} + \sum_{i=1}^k \alpha_{1if} F_{t-i} + \varepsilon_{st} \tag{1}$$

$$f_t = \alpha_{0f} + \sum_{i=1}^k \alpha_{2is} S_{t-i} + \sum_{i=1}^k \alpha_{2if} F_{t-i} + \varepsilon_{ft} \tag{2}$$

$$\begin{bmatrix} \varepsilon_{st} \\ \varepsilon_{ft} \end{bmatrix} \bigg/ \Psi_{t-1} \sim N(0, H_t) \tag{3}$$

$$H_t = \begin{bmatrix} h_{s,t} & h_{sf,t} \\ h_{sf,t} & h_{f,t} \end{bmatrix} \tag{4}$$

$$h_{s,t} = v_{0s} + v_{1s} \varepsilon_{s,t-1}^2 + v_{2s} h_{s,t-1} \tag{5}$$

$$h_{f,t} = v_{0f} + v_{1f} \varepsilon_{f,t-1}^2 + v_{2f} h_{f,t-1} \tag{6}$$

$$h_{sf,t} = \rho_{sf,t} \sqrt{h_{s,t}} \sqrt{h_{f,t}} \tag{7}$$

$$\rho_{sf,t} = \frac{q_{sf,t}}{\sqrt{q_{ss,t} q_{ff,t}}} \tag{8}$$

$$q_{sf,t} = \bar{\rho}_{sf} + v(z_{s,t-1} z_{f,t-1} - \bar{\rho}_{sf}) + \delta(q_{sf,t-1} - \bar{\rho}_{sf}) \tag{9}$$

we define s_t and f_t as the change in the price of the spot and futures between time t and $t+1$, respectively; S_{t-1} and F_{t-1} are the log prices of the foreign currency in US dollars for immediate and future deliveries, respectively; Ψ_{t-1} is the information set at time $t-1$; the parameter $\rho_{sf,t}$ in equations (7) and (8) is the dynamic conditional correlations between the spot and futures returns and must be estimated; H_t in equation (4) is the conditional variance matrix at time t ; the term ε_{st} and ε_{ft} in equations (1) and (2) are the error terms which are dependent on the information set Ψ_{t-1} ; h_{st} and h_{ft} are conditional variance of spot and futures returns, respectively. Eventually, the conditional correlation $q_{sf,t}$ which was specified by Engle (2002) is employed in equation (9) where $\bar{\rho}_{sf}$, $z_{s,t} = \varepsilon_{st} / \sqrt{h_{s,t}}$ and $z_{f,t} = \varepsilon_{ft} / \sqrt{h_{f,t}}$ are the constant unconditional correlation between spot and futures markets and the standardized residuals of the spot returns and of futures returns, respectively (for details see Hsu Ku et al. (2007)). In order to estimate the DCC-GARCH framework, we can use the maximum likelihood method

(MLE). By way of MLE, we can obtain the estimates of $\rho_{sf,t}$, $\sqrt{h_{s,t}}$ and $\sqrt{h_{f,t}}$, thereby obtaining the optimal hedge ratio $b_t^* = h_{sf,t} / h_{f,t} = \rho_{sf,t} \sqrt{h_{s,t}} / \sqrt{h_{f,t}}$. In this paper, all the above methods of estimating the hedge ratios are applied and their effectiveness is compared in this paper.

MODEL ESTIMATION AND COMPARISON AMONG HEDGING MARKETS

The DCC-GARCH model developed by Engle (2002) is employed to capture dynamic conditional correlations as well as the long-run shared trends between spot and futures exchange returns. Table 2 summaries the results of the DCC-GARCH estimated for all spot and futures markets. According to Table 2, regarding the conditional variance, it is shown that estimations of all parameters are statistically significant except the v_{0s} in Germany and v_{2s} and v_{2f} in Japan. Estimations of the parameters δ in the conditional correlations are statistically significant in Canada and Germany under significance at the 10% level and statistically significant in Hong Kong under significance at the 5% level.

It is shown that the persistence of the conditional correlations is significant between the spot and futures in Canada, Germany and Hong Kong. And estimations of the parameters γ in the conditional correlations are statistically significant in Hong Kong under significance at the 10% level and statistically significant in America, Britain, Germany and Japan at the 5% level except for Canada which is not significant at the 10% level. It is shown that the persistence of the conditional correlations in the standardized residuals is all statistically significant except for in Canada.

The results of the LB(2) and LB(2)² statistics show that all LB(2) and LB(2)² statistics for the standardized residuals and standardized squared residuals show no serial correlations between the spot and futures in America, Britain, Canada, Germany, Hong Kong and Japan under significance at the 5% level. It is shown that the design of the DCC-GARCH model has dealt with the condition of the non-normal distributions with fatter tails.

Thus, the results in Table 2 suggest that the DCC-GARCH model is appropriate. We employ $b_t^* = \rho_{sf,t} \sqrt{h_{s,t}} / \sqrt{h_{f,t}}$ to obtain optimal hedge ratios for the DCC-GARCH models, respectively, and then calculate the average of the hedge ratios in every market.

Table 3 presents the number, average, variance and t-value of the optimal hedge ratio in America, Canada, Britain, Germany, Hong Kong and Japan. In each market, we divided the full period April 2006 to March 2008 into two sub-periods in accordance with the serious subprime mortgage crisis which began when the New Century Financial Corporation collapsed. One sub-period is from April 2006 to March 2007, the other is from April 2007 to March 2008. In every market, for the sub-period April 2006 to March 2007 we observed 259 samples to calculate the hedge ratios and for the sub-period (April 2007 to March 2008) 261 observed samples are used to calculate the hedge ratios.

For the full period (April 2006 to March 2008) the average hedge ratio of 1.0164 for Britain was the highest hedge ratio in all the markets and the only market whose average hedge ratio was more than one. And the average hedge ratios of 0.9924 for Germany, 0.9735 for America, 0.9593 for Canada, and 0.9511 for Japan are the second, third, fourth and fifth highest, respectively. The average hedge ratio of 0.9204 for Hong Kong is the lowest. In sum, Britain and Germany in the Europe markets belong to the higher hedge ratio category. Hong Kong and Japan in the Asian markets belong to the lower hedge ratio category.

Table 2: The Hedge Ratio Results of Six Markets-MLE of DCC-GARCH Model

$$\begin{aligned}
 s_t &= \alpha_{0s} + \sum_{i=1}^k \alpha_{1is} S_{t-i} + \sum_{i=1}^k \alpha_{1if} F_{t-i} + \varepsilon_{st} & f_t &= \alpha_{0f} + \sum_{i=1}^k \alpha_{2is} S_{t-i} + \sum_{i=1}^k \alpha_{2if} F_{t-i} + \varepsilon_{ft} \\
 h_{s,t} &= v_{0s} + v_{1s} \varepsilon_{s,t-1}^2 + v_{2s} h_{s,t-1} & h_{f,t} &= v_{0f} + v_{1f} \varepsilon_{f,t-1}^2 + v_{2f} h_{f,t-1} \\
 q_{sf,t} &= \rho_{sf} + v(z_{s,t-1} z_{f,t-1} - \rho_{sf}) + \delta(q_{sf,t-1} - \rho_{sf}) & h_{sf,t} &= \rho_{sf,t} \sqrt{h_{s,t}} \sqrt{h_{f,t}} \\
 H_t &= \begin{bmatrix} h_{s,t} & h_{sf,t} \\ h_{sf,t} & h_{f,t} \end{bmatrix} & & \begin{bmatrix} \varepsilon_{st} \\ \varepsilon_{ft} \end{bmatrix} / \Psi_{t-1} \sim N(0, H_t)
 \end{aligned}$$

Parameter Garch (*,*)	America Garch (1,1)	Britain Garch (1,1)	Canada Garch (1,1)	Germany Garch (1,1)	Hong Kong Garch (1,1)	Japan Garch (1,1)	
Conditional Variance							
v_{0s}	0.0000043 (4.409)**	0.0000050 (3.896)**	0.0000100 (3.935)**	0.0000042 (1.732)	0.0000018 (2.137)**	0.0001230 (8.772)**	
v_{1s}	0.0940000 (4.792)**	0.1830000 (6.484)**	0.0870000 (4.493)**	0.1790000 (0.594)**	0.0440000 (4.584)**	0.2540000 (4.111)**	
v_{2s}	0.8600000 (33.130)**	0.7920000 (27.830)**	0.8090000 (20.821)**	0.8050000 (28.595)**	0.9510000 (77.725)**	0.0280000 (0.447)	
v_{0f}	0.0000064 (5.362)**	0.0000047 (3.969)**	0.0000123 (3.467)**	0.0000036 (2.013)**	0.0000022 (2.421)**	0.0001510 (8.267)**	
v_{1f}	0.1180000 (5.189)**	0.1780000 (0.471)**	0.0870000 (4.186)**	0.1680000 (6.583)**	0.0440000 (5.093)**	0.2380000 (4.071)**	
v_{2f}	0.8150000 (26.601)**	0.7950000 (28.081)**	0.7910000 (16.073)**	0.8180000 (32.065)**	0.9500000 (90.613)**	-0.0620000 (-0.836)	
Conditional correlation							
γ	0.1000000 (2.922)**	0.1770000 (4.571)**	0.0260000 (1.088)	0.3990000 (8.914)**	0.0600000 (1.784)*	0.1930000 (4.577)**	
δ	0.1230000 (0.511)	0.0890000 (0.582)	0.6340000 (2.020)*	0.1650000 (2.023)*	0.1470000 (0.534)**	0.0330000 (0.138)	
LB Tests For 2th-Order Serial Correlation of Standardized Residuals and Standardized Squared Residuals							
Spot	Q(2)	0.727	0.185	0.516	0.175	0.227	0.743
	Q ² (2)	1.651	0.875	0.106	0.130	3.944	3.088
Futures	Q(2)	1.031	0.355	0.621	2.990	0.033	0.956
	Q ² (2)	0.655	1.242	0.024	0.176	4.922	3.254

Notes: **and* represent significance at the 1% and 5% levels, respectively. Q(2) and Q²(2) are the LB tests for the 2nd-order serial correlation of standardized residuals and standardized squared residuals, respectively. The parameters of γ and δ are the coefficients included in Equation 9. The regression DCC-GARCH model contains all Equations 1-9.

The remaining markets such as the American and Canadian ones in the North American market are in the middle hedge ratio category. With regard to the variance of the hedge ratio, for the full period (April 2006 to March 2008), the variance of the hedge ratio was higher in America and Germany and lower in Canada and Hong Kong. Moreover, the variance of the hedge ratio in both Britain and Japan were in the middle. Since this paper examines whether the hedge ratios have changed after the serious subprime mortgage crisis, Table 3 illustrates the hedge ratios comparison for the two sub-periods. In each market the hedge ratios after April 2, 2007 are bigger than the hedge ratios before April 2, 2007.

Especially, the t values are significant at the 5% levels in the American, British and Hong-Kong markets. The results show that investors were more risk-averse during the serious subprime mortgage crisis. Moreover, this result is consistent with the empirical findings of Lien (2005). In other words, it is shown that when the investors are in the asymmetry return of the financial assets, especially as they were in the U.S. “subprime mortgage crisis”, the decision makers not only generate strong reflections but also are inclined to weigh adverse evidence more heavily.

Figures 1- 6 display the time-varying hedge ratio for each market over the two sub-periods (i.e. the period before and after the serious subprime mortgage crisis began). Though the hedge ratio of Germany has a slight dropping tendency after November 2007, the hedge ratio has a rising tendency in all six markets when the serious subprime mortgage crisis began. The condition is consistent with the results in Table 3.

Table 3: The Number, Average and Variance and T-Value of Optimal Hedge Ratios in America, Britain, Canada, Germany, Hong-Kong, and Japan

Market	Number of hedge ratio 2006/04~2007/03	Number of hedge ratio 2007/04~2008/03	Average of hedge ratio 2006/04~2008/03	Average of hedge ratio 2006/04~2007/03	Average of hedge ratio 2007/04~2008/03	Variance of hedge ratio 2006/04~2008/03	Variance of hedge ratio 2006/04~2007/03	Variance of hedge ratio 2007/04~2008/03	$H_0 : \mu_1 = \mu_2$ $H_1 : \mu_1 \neq \mu_2$ t-value
	American	259	261	0.9735	0.9585	0.9884	0.0026	0.0015	0.0032
British	256	261	1.0164	1.0081	1.0246	0.0018	0.0015	0.0020	4.5102 **
Canadian	259	261	0.9593	0.9575	0.9610	0.0009	0.0008	0.0010	1.3217
German	259	261	0.9924	0.9891	0.9957	0.0029	0.0027	0.0030	1.4187
Hong-Kong	259	261	0.9204	0.9163	0.9245	0.0005	0.0019	0.0012	2.6927 **
Japanese	259	261	0.9511	0.9491	0.9531	0.0015	0.0010	0.0020	1.1800

Notes: **and* represent significance at the 1% and 5% levels, respectively. μ_1 is the average hedge ratio from April 2006 to March 2008 and μ_2 is the average hedge ratio from April 2006 to March 2008.

Figure 1: Time-Varying Hedge Ratio in DCC-GARCH Estimations for America

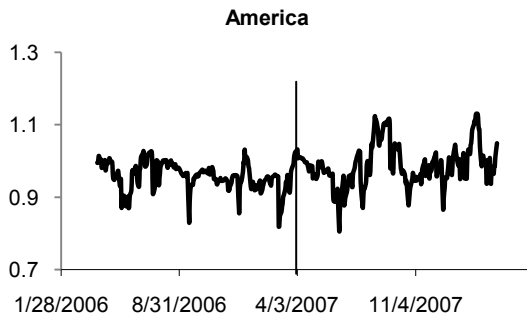


Figure 2: Time-Varying Hedge Ratio in DCC-GARCH Estimations for Britain

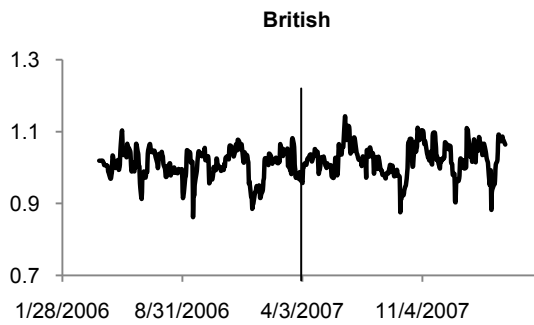


Figure 3: Time-Varying Hedge Ratio in DCC-GARCH Estimations for Canada

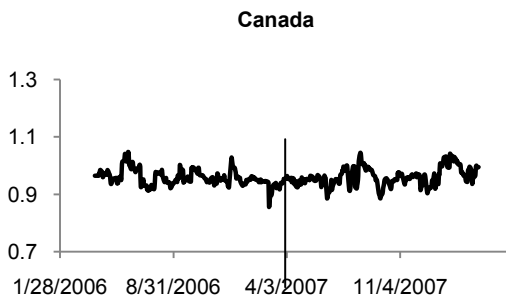


Figure 4: Time-Varying Hedge Ratio in DCC-GARCH Estimations for Germany

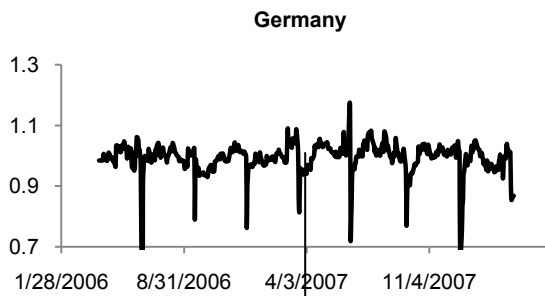


Figure 5: Time-Varying Hedge Ratio in DCC-GARCH Estimations for Hong-Kong

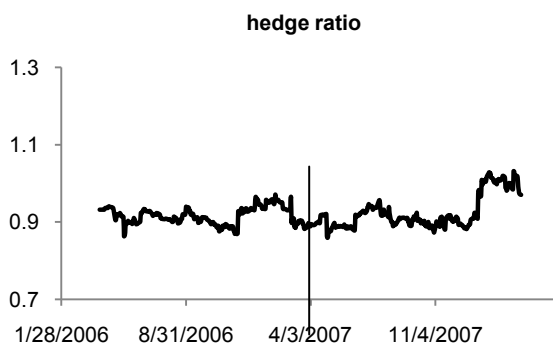
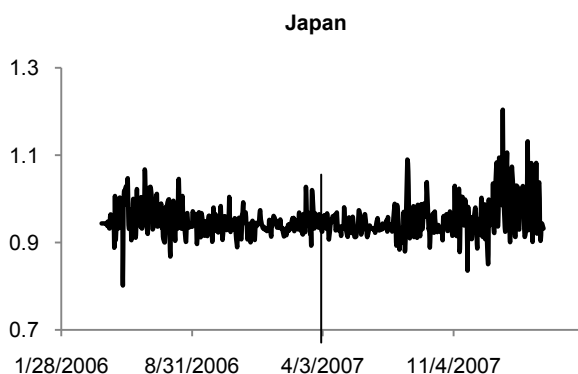


Figure 6: Time-Varying Hedge Ratio in DCC-GARCH Estimations for Japan



More specifically, our results present at least four important implications for financial market investors who want to reduce portfolio risk using futures contracts. First, it is shown that when the investment market is in the asymmetry return of the financial assets, especially as when in the U.S. “subprime mortgage crisis”, the decision makers not only generate strong reflections but also are inclined to weigh adverse evidence more heavily. Secondly, the hedges ratio is in accordance with asymmetric volatility of the risk, so the hedge ratio has an impact on investment decision makers. Thirdly, with regard to the risk arbitrage, the main goal for hedging is to minimize the variability of return on investment. When a financial crisis happens the hedge ratios are expected, in general, to get bigger. The investors can employ hedge ratios (the measure of adopting a long-short position) to reduce the variance of risk and to make profits. Fourthly, our article also shows how the hedging methodologies can be evaluated in a modern risk management background, using a technique based on the estimation of value at risk.

CONCLUSIONS

During the U.S. subprime mortgage crisis, large financial institutions have collapsed or been bought out. Especially, after the New Century Financial Corporation bankruptcy on April 2, 2007, many problems in subprime lending have emerged and the global financial markets have since felt its effects continuously. This paper investigates the hedge ratio changes in America, Britain, Canada, Germany, Hong Kong and Japan. We used the DCC-GARCH of Engel (2002) to estimate the hedge ratio for the period from 3 April 2006 to 31 March 2008. The data employed in this paper imply non-normal distributions and serial correlations for both the spot and futures in all the markets, so the DCC-GARCH model is applied.

It is shown that the serious subprime mortgage crisis led to a greater average hedge ratio. The empirical results show that investors were more conservative during the time the serious subprime mortgage crisis

began. In other words, it is shown that when the investors are in the asymmetry return of the financial assets, especially as in the U.S. “subprime mortgage crisis”, the decision makers not only generate strong reflections but also are inclined to weigh adverse evidence more heavily. This result is consistent with the empirical findings of Lien (2005).

While the major purposes of this paper have been fulfilled, further research problems remain unsolved. For instance, this study has only used the daily data for the period from 3 April 2006 to 31 March 2008. It could incorporate the intra-day data or a wider event period to get a more exact conclusion. Besides, future research could also use different markets, frameworks or ordinances or fit different models to explore the changing hedge ratios.

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EVIDENCE ON CORPORATE GOVERNANCE COMPLIANCE BY PALESTINE SECURITIES EXCHANGE LISTED FIRMS

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ABSTRACT

Good corporate governance is widely recognized as essential for the creation of a better and more attractive investment climate. The key objective of this descriptive research is to examine the extent of compliance of firms listed at Palestine Securities Exchange (PSE) with corporate governance “best practices” from managerial perspective. The study provides evidence that the PSE listed firms do not comply satisfactorily with corporate governance best practices specially when it comes to Board Composition and Independence. On the other hand, the non-compliance level in the area of transparency and disclosure was not as obvious. The study identifies a number of factors that may contribute to this non-compliance including the non-existent of enforceable code of corporate governance and the outdated Company Law that is still in effect in the Palestinian Territories, and finally the family dominance over corporate affairs. The value of this study stems from providing an evidence on compliance with good corporate governance by firms operating in under-developed country with a small and simple but growing economy. The findings of this paper are considered relevant and helpful when evaluating the maturity of Palestinian economy, as well as the degree of PSE efficiency.

JEL: G34

KEY WORDS: Corporate Governance, CEO Duality, Boards' composition, Boards' effectiveness, Transparency and Disclosure.

INTRODUCTION

The issue of corporate governance emerges from the relationship among three groups in determining the direction and performance of the corporation. More specifically, the first group is the investors/shareholders who participate in the profits of the enterprise without being responsible for the operations, the second group constitutes of management who runs the company without taking the responsibility for personally providing the funds. To make this possible, laws have been passed so that shareholders have limited liability and, correspondingly, limited involvement in a corporation's activities. That involvement does include the right to elect directors who have a legal duty to represent the shareholders and protect their interests. As representatives of the shareholders, the third group appear to be the directors who have both the authority and the responsibility to establish basic corporate policies and to ensure that they are followed (Wheelen & Hunger, 2004). Therefore, a corporate governance problem arises from the separation of control from ownership (Nam and Nam, 2004).

Over the last two decades the world witnessed a series of events that made the topic of corporate governance a priority for both the business community and international financial institutions around the world. Impressive business failures have driven the demand for change in many countries. More recently, many reported scandals, financial crises, or institutional failures in East Asia, Russia, and the United States have brought corporate governance issues to the forefront in developing and developed countries and transitional economies, causing these countries to pay more attention to the corporate governance issues, especially the passive role played by boards of directors, the demand for increasing fairness,

accountability, responsibility and transparency of board members as well as top management (Helbling & Sullivan, 2002).

Since the declaration of the G7 Summit Meeting in 1998 regarding the new focus on “ Corporate Behavior and Incentives”, and the adoption of a set of principles of corporate governance by the Organization for Economic Cooperation and Development (OECD) in Mid-1999 which was amended in 2004, many countries have developed codes of best practice or have initiated legal, regulatory, and institutional corporate governance reform projects and programs (CIPE, 2003) . In the case of Palestine, the Palestinian Capital Market Authority (PCMA) has now completed the drafting of a code of corporate governance. This code is expected to be final and effective by the end of year 2009.

The need for a good corporate governance is addressed from the enhanced need for financial funds to sustain the increasingly complex nature of company activities that compete in an integrated world market. In this globalizing economy, in order to attract foreign investment, companies are increasingly concerned with good governance as they need to ensure that foreign investors’ rights are respected. Corporate governance is very important for the maximization of the company value as it helps to reduce the cost of foreign financing by ensuring trust among foreign investors (Tuzcu & Fikirkoca, 2005). Moreover, improvements of corporate governance practices in the developing and emerging markets are being given attention so as to attract investors disappointed by the breakdown of the US and Europe market (i.e. Enron and WorldCom). Consequently, developing and emerging markets have a chance to increase their share of international portfolio investment. Palestine as one of these markets, constitutes the area of concentration of this research. The uniqueness of this research will contribute to the work of other researchers in the field. Also, the findings of this study will provide a starting point from which regulatory bodies can begin to develop corporate governance.

The remainder of this paper is organized as follows. Section two discuss related literature. While section three explains the data collection and methodology used. Section four points out the empirical findings and discussion. And section five draw implications and further research in addition to study limitations.

LITERATURE REVIEW

Adolf Berle and Gardiner Means in their book “the modern corporation and private property” published in 1932 were amongst the first who emphasize that the separation of ownership and control allows managers to pursue interests that conflict with firm’s value maximization, as cited by (Shleifer & Vishny, 1997; La Porta et al., 1999; Holderness, 2003; Tuzcu & Fikirkoca, 2005 and Gourevitch & Shinn, 2005). According to Holderness (2003) Berle and Means argue that most production occurs in small firms where owners are also the managers. However, the industrial and technological revolution required a change in the optimal size of firms, which cause inability for single individual to have sufficient wealth to own a controlling interest, as a result, firms faced “the dissolution of the old atom of ownership into its component parts, control and beneficial ownership” (Berle and Means, 1932, p.8 as cited by Holderness). Consequently, this separation of ownership and control warns “the very foundation on which the economic order of the past three centuries has rested”.

According to Shleifer & Vishny (1997) this separation of ownership and control or “management and finance” as they called it, is the essence of the agency problem. “Agency problem is the difficulties financiers have in assuring that their funds are not expropriated or wasted on unattractive projects” (Shleifer & Vishny, 1997, p.741).

Corporate Governance Best Practices

Although the public benefit of corporate governance principles was firstly analyzed by Berle and Means in their seminal work "Modern Corporation and Private Property". They theorized corporate governance as an agency problem focusing on the issue of how to align the corporate executives' (who has the responsibility of managing corporate assets) interests with the shareholders' interests (Berle and Means, 1932 as cited by Tuzcu & Fikirkoca, 2005). Serious Efforts to develop corporate governance by establishing international standards have recently gained vast attention. Global institutions such as the World Bank, the Organization of Economic Cooperation and Development, most of the regional development banks, and the various national development agencies have made severe effort towards establishing code of corporate governance in the last several years.

The news of fraudulent practices and company directors in boardrooms at high-profile firms like Enron, Tyco, and Worldcom, as well as the revelations of questionable accounting practices and the appearance of excessive managerial compensation at other firms made corporate governance to become the focus of very public debate. In response to the scandals, the US Congress passed the Sarbanes–Oxley Act of 2002 aimed at improving the quality of audits, enhancing the financial expertise of directors, and increasing the accountability of managers at publicly traded firms (DeYoung et. Al., 2005). The principal focus of corporate governance is to define the relationship between the three key actors of the firm: shareholders, the board of directors and company management (Wheelen & Hunger, 2004). This tight conceptualization is at the heart of OECD's corporate governance principles issued in the mid-1999 and reviewed in 2004 which are represented under five topics:

Table 1: Principles of Corporate Governance (OECD, 2004)

No.	Principle	Description
I	The Rights of Shareholders and Key Ownership Functions	"The corporate governance framework should protect and facilitate the exercise of shareholders' rights".
II	The Equitable Treatment of Shareholders	"The corporate governance framework should ensure the equitable treatment of all shareholders, including minority and foreign shareholders. All shareholders should have the opportunity to obtain effective redress for violation of their rights":
III	The Role of Stakeholders in Corporate Governance	"The corporate governance framework should recognize the rights of stakeholders established by law or through mutual agreements and encourage active co-operation between corporations and stakeholders in creating wealth, jobs, and the sustainability of financially sound enterprises":
IV	The Responsibilities of the Board	"The corporate governance framework should ensure the strategic guidance of the company, the effective monitoring of management by the board, and the board's accountability to the company and the shareholders".

This table shows the five principles of corporate governance as indicated by the OECD.

As mentioned earlier, corporate governance is the relationship between three groups in determining the direction and performance of the corporation. From this view point, the main focus in the following section will be given to shareholders rights in light with equitable treatment of shareholders, followed by the responsibilities and effectiveness of the board of directors, and then disclosure and transparency issue.

Shareholders Rights and Equitable Treatment of Shareholders

The main difference between small closely-held companies and large publicly-held companies is that the later has a large number of small owners or shareholders who have the residual control rights through voting, but since those owners are too small and numerous to exercise such control on a day to a day basis they delegate this control to boards of directors who in turn delegate it to management (Hart, 1995). Hart added that those small shareholders or "dispersed shareholders" have little or no incentive to monitor management. This is because they believe (shareholders) that monitoring is a public good: if one shareholder's monitoring leads to improve performance, all shareholders benefit and since monitoring is

costly and time consuming they leave it to other shareholders and then no monitoring is achieved. Shleifer and Vishny (1997) argue that the process of collecting financing sources from many investors results in creating investors that are too small and poorly informed to exercise their rights of control as owners and they end up with the free rider problem. Although Boards of directors are assigned by shareholders to guide and monitor the management, shareholders are given rights to participate directly in monitoring their corporation, their primary rights are getting the necessary information on a timely and regular basis, participating in and voting at general shareholders meeting and electing board members (OECD, 2004).

Board of Directors Composition, Responsibilities and Effectiveness

A board of directors is viewed as "*a team of individuals with fiduciary responsibilities of leading and directing a firm, with the primary objective of protecting the firm's shareholders interests*" (Abdullah, 2004, p.47). Wheelen and Hunger (2004) divided the directors into two types: An inside director who is typically an officer or executive employed by the firm, and outside director who may be executive of other firm but is not employee of the boards firm, they argued that although there is no clear evidence indicates the inclusion of outside directors on board results in enhanced corporate performance. In US public companies, "outside" directors have been the great majority of directors for many years. Shareholders and various interest groups have seriously questioned the role of the board of directors in corporations. They are concerned that outside board members often lack sufficient knowledge, involvement, and enthusiasm to do a satisfactory job of providing guidance to top management (Wheelen & Hunger, 2004).

The boards of directors have many responsibilities, they are mainly responsible for setting the company's strategy, its overall direction and mission, hiring and firing the CEO and top management, controlling, monitoring and supervising top management, and reporting and caring for shareholders interests (Shleifer and Vishny, 1997; Wheelen and Hunger, 2004). Nam and Nam (2004) add that the board of directors is also responsible for making the final decisions on appointment of compensations to senior managements, budget, major transactions, and change to capital structure and related-party transactions. The concern of corporate governance has been with both the accountability of the boards of directors, and with board effectiveness (Cadbury,1992).

However, in reality, the boards in many far east companies work mainly for the interests of dominant shareholders harming the interests of minority shareholders and the firms it self, this behavior couldn't be effectively restricted and was one of the causes of the 1997 Asian crisis (Nam and Nam, 2004). To ensure the board effectiveness, the Cadbury committee (1992) recommends the inclusion of a sufficient number of non-executive directors who would bring independence in the boards' judgment. These non-executive directors should be, in the majority independent directors. Independent Director is the one who is not employed by the company and do not have any relationship with the dominant shareholder or top management and have no serious business interest in the company. Wheelen and Hunger (2004) state that outside directors are less biased and more likely to evaluate management's performance objectively than inside directors. This view is consistent with agency theory, which states that "*Problem arises in corporations because the agents (top management) are not willing to bear responsibility for their decisions unless they own a substantial amount of stock in the corporation*", (Wheelen and Hunger, 2004, p.29). This theory proposes that most of the board's members need to be outsiders so that top management is prevented from being selfish and harm shareholders interests. OECD (2004) emphasizes that sufficient number of non executives capable of exercising independent judgment on corporate affairs be assigned to tasks where there is a potential for conflicts of interest, such as financial reporting, nomination, and executive and board remuneration.

CEO Duality: When the board chairman is also the CEO, the board ability to monitor and oversea management is reduced as a result of lack of independence and conflict of interest (Daynton, 1984;

Dobrzynski, 1991). The issue that arises when companies practice CEO duality is “who monitors management?” that is best described as “who will watch the watchers.” The issue of separation of the top two positions has been addressed by the Cadbury committee (1992), which recommends that the roles of the board chairman and the CEO be separated. Although research does not clearly indicate either a definite positive or a negative effect of combined positions on the firm’s performance, the stock market responds negatively to announcements of CEOs also assuming the chairman position (Harris and Helfat, 1998). The OECD (2004) argues that mandatory separation of the CEO and chairperson positions might undermine the strategic leadership and accountability of corporations and might trigger damaging power struggles at the top ranks of corporations.

Information Transparency and Disclosure

Transparency and disclosure demonstrate the quality and reliability of financial and non-financial information provided by management to ensure that they are accountable for their actions. A company's published announcements and reports (and its general meetings) are its primary channel of communication with shareholders. Most literature focus on corporate governance disclosure itself, that is how to report the companies compliance with corporate governance. Other Literature deals with Transparency and Disclosure as a separate topic from corporate governance. Hermalin and Weisbach (2007) have proven that transparency and disclosure have a direct relationship with corporate governance, namely, CEO and board of directors. They argue that while transparency and disclosure have its benefits in increasing the firms' value they have costs as well; the cost is compensating management for involving in higher risk in their jobs as transparency increases. Disclosure should include essential information such as major share ownership and voting rights, members of the boards and executives governance structure namely, the basic relationship between stockholders, board of directors and management, the company's financial and operation results, managerial compensations, and related party transactions.

According to the OECD (2004) good corporate governance framework must include accurate disclosure on all material matters about the corporation, financial aspects, performance, ownership, and governance of the firm. It also concluded that Channels for disseminating information should provide for equal, timely and cost efficient access to relevant information by users. Timely disclosure of accurate information on important firm-related matter is important to protect shareholders’ rights. Nam and Nam (2004) argues that the importance of disclosure to shareholders is for two main reasons. First, shareholders require a free access to corporate information that helps them to make inform decision in their interests. Second. Information disclosure prevents managers and dominant shareholders from involving in illegal activities that are detrimental to minority shareholders.

The Palestinian Environment

The Palestinian private businesses do not have many adequate financing options, neither in amount nor in variety. The financial system cannot be characterized as sound, functioning or efficient. To the contrary, the financial intermediation through the banking industry is too low as reflected in the credit to deposits ratio. This ratio is on average below 30%, while it goes beyond 70% in neighboring countries as well as in OECD countries. Furthermore, more than two thirds of banking credits extended to private businesses have been either in the form of short-term loans or overdrafts, while long– term financing is almost none existent. That explains why the capital structure of almost all Palestinian corporations is geared heavily towards equity financing, with extremely low indebtedness (Abdelkarim, 2007). The establishment of Palestine Securities Exchange (PSE) in 1997 has provided public shareholdings with new opportunities for long – term financing, at a time when banks exercised a conservative credit policies (Abdelkarim, 1995). The PSE has 37 listed firms; these firms are banks, investment, service, food, and pharmaceutical companies in general. The market value of these listed companies had dropped by more than 40% by the end of 2004, but it started to rise in 2005 to reach unprecedented level of \$3,500 million by the end of that

same year (increase by 200% from the level of 2000). However, beginning of 2006 the Palestine Securities Exchange, like other Arab markets, has been going through a severe price correction process, led so far to a loss of around 60% of its capitalization value, this declining value has even sharpened following the global financial crisis. In February 2005, the Palestinian Capital Market Authority (PCMA) was established in accordance with to the Securities Law number 12 for year 2004. The PCMA is the sole legal entity that is responsible for monitoring the trading activities at the PSE as well as for organizing the conduct of the listed companies and the brokerage member firms. The PSE performance has developed over years. However, it is still performing under its potential and still invites considerable reforms. Market efficiency and poor governance are issues still of concern to policy makers and investors. It is widely perceived that this phenomenon has been negatively affecting the fair pricing of stocks; consequently, impairing confidence in the PSE as a whole. This explains why the PSE continues to lack sufficient depth and liquidity. upgrading corporate governance is expected to attract foreign portfolio investments and in turn reduce ownership concentration.

To establish a good corporate governance framework, the interests of stockholders in publicly traded firms are protected largely by three institutions (De young and Driscoll, 2005). First, corporate board of directors, which hires and monitors the activities of the company's management. Second, the PCMA along with the PSE which issued a disclosure code of conduct in 2006, as well as undertaking a considerable efforts of establishing codes of corporate governance in Palestine, these codes are in the final stage and will be in effective by the end of this year. And the PSE market made up of various investors constitute the third influential institution on the stockholders' interests by offering daily opinions on the health of the firms by translating public information into a higher or lower stock price.

Very few studies conducted to study the corporate governance issue in Palestinian firms. A study of enhancement of corporate governance of companies in Palestine conducted by the Palestine Economic policy research institute MAS (2008) found that listed corporations compliance with the average corporate governance index is higher than unlisted corporations. Furthermore, the study found that there is a positive relationship between corporate governance execution and return on investment, growth in earnings and the debt ratio. Abdelkarim and Alawneh (2008) found some evidence of the relationship between firms' performance as measured by Tobin's Q and corporate governance expressed by ownership concentration, they argue that ownership concentration is negatively related to firm's value.

METHODOLOGY

All companies listed on the Palestinian Securities Exchange (PSE) as of December 31, 2008 were subject to investigation. Banks listed on the PSE were excluded. This is because, the banking law #2 year 2002 issued by the Palestinian monetary authority imposes more regulations on such banks, which causes some of the basic corporate governance requirements be implemented by those banks, while other listed companies are not enforced to do so.

A questionnaire was designed and submitted to the corporate managers located in Ramallah, Nablus and Gaza; the Questionnaire design include both factual information and opinions. Factual information is of importance so that the bias that may be introduced by the subjective judgments of individuals who evaluate corporate governance practices in their companies is minimized.

In constructing the questionnaire an already existing questionnaire survey on corporate governance practices from a study conducted by Nam & Nam (2004) was relied upon. This study's questionnaire requested factual information at the beginning. The rest of it is mainly composed of three main parts. The first part aimed at measuring the shareholders' rights in terms of receiving timely information and equitable treatment. The second part is about transparency and disclosure, as noted earlier. The third part aims to measure the boards of directors' efficiency and effectiveness, as well as their attendance,

contribution, qualifications, and commitment as key personnel for the company. Twenty one out of thirty one companies responded to the questionnaire, the data was coded and entered on the Statistical Package for the Social Science (SPSS) for analysis.

EMPIRICAL FINDINGS AND DISCUSSION

The survey results reflect the existence of almost complete privatization in the Palestinian firms. Since all the surveyed firms are neither wholly nor partially owned nor controlled by the government. By asking the surveyed firms about the relation of the CEO with the founder or the largest shareholder we could identify which of the listed firms are subject to corporate governance matter. Wheelen and Hunger (2004) argue that when the corporation is owned by the founder who also manage the company there is no need for an active board to protect the interests of the owner-manager shareholders, the interest of the owner and the managers are identical. In this instance, a board is really unnecessary and only meets to satisfy legal requirements. 57% of the firms are managed by professional managers, while 38% are managed by the founder himself who also acts as CEO of the firm and about 5% of the firms are managed by the founder’s family members. The study investigated the shareholders participation in the shareholders meetings and the adequacy of information provided to them pertaining the agenda items as well as shareholders priority subscription rights in the issuance of new shares and the disclosure of the amount of equity ownership that major shareholders control. The results obtained from the survey are presented in the table below. The analysis shows that shareholders rights are adequately protected (with means of 1.95 and 2), but it seems that there is no adequate disclosure concerning ownership concentration (mean=2.43). Although, the ownership concentration as a major deficiency in corporate governance of most Asian economies is mentioned by Abdul Kadir(1999) who argues that it is not the general separation of management and control that creates problems but the existence of many firms with large shareholders who exercise control right on the expense of minority shareholders interests.

Table 2: Data Analysis for Shareholders Rights

		Shareholders are provided with adequate information on the meeting	Shareholders priority subscriptions right is adequately protected	It is not difficult to know how much equity ownership the major shareholders control
N	Valid	21	21	21
	Missing	0	0	0
Mean		1.95	2.00	2.43
Minimum		1	1	1
Maximum		5	5	5

This table shows the results of data analysis for shareholders rights the data was captured from a 5 points likert scale starting from 1 as strongly agree to 5 as strongly disagree.

Furthermore, it seems to encounter difficulties in allowing shareholders to participate in decision making. This result could be enhanced by taking a closer look to the boards of directors composition in the listed firms, the observation indicates that most of the boards are dominated by family members and they are highly overlap suggesting the non-influence of shareholders in the decision making processes.

Concerning Transparency and Disclosure, A strong disclosure system can help to attract capital and maintain confidence in the capital markets. In our survey, 48% of the companies disclose resume background of directors either on its annual reports or on reports to regulatory agency (PSE authority). While 30% of the companies use its web site to disclose such information in addition to the annual reports or the reports to regulatory agency, and 22% of the companies do not disclose such information by any means of disclosure. Regarding the disclosure of the significant changes in ownership, the most used channel for disseminating such information is either the annual report or the report to the regulatory agency since almost 76% of the companies disclose such information either by annual report or report to

regulatory agency. 33% of the firms do not disclose governance structure and policies, while 28.6% disclose such information in the report to the regulatory agency. 14% the firms tend to use the annual report, report to regulatory agency and company's web site to disclose such information. The big, majority of the companies do not disclose any information concerning the extent to which the firm's corporate governance complies with the best practices. For the disclosure to be meaningful it should be timely, accurate and informative (OECD, 2004). Since formal business reports are usually issued only annually or semiannually, sensitive information should be reported on a timely basis to the regulatory agencies and posted on the company's web site promptly. Many countries are now mandating the use of the internet to increase its transparency and provide investors of timely, cost-effective and easy accessible information. Although the PCMA bylaw #12 for year 2004 as well as for 2006 of full transparency and disclosure require the disclosure of audited annual, semi annual reports and quarterly financial statements in addition to any timely-sensitive information that seems to be important for investors decisions, it seems that 9.5% of the listed companies do not disclose neither semi-annual reports nor quarterly financial statements, this unexpected results make the companies' transparency questionable. 30% of the responded firms have a web site which is informative in both languages English and Arabic, while 9.5% of the firms do not have a web site yet. The remaining 60% the firms note that their web sites have no or limited information in English.

Boards of Directors' composition: The size of boards in the surveyed firms seems to be in harmony with the typical board size, 57% of the boards have from 9 to 11 members while 33% of the boards have from 6 to 8 members. No board has less than 6 members. The share of outside or independent directors on boards is minimal. 62% of the boards do not have any outside directors, while 29% have more than 7 outside directors. It is prevalent among the surveyed firms not having any foreign nationals on their boards, only 19% of the firms do have foreign nationals. The position of the CEO and the board chairman are separated in 57% of the surveyed firms, while 43% of the firms combine the two positions in one person. 52% of the firms surveyed often include officer of an affiliated company, while 43% of the boards include senior manager from a supplier or a customer company or someone from law, accounting or consulting firm that provides professional service to the firm.

Boards Independence: For those companies that have outside directors more than half of them responded positively to the questions of weather outside directors meet without management to discuss corporate matters and alter or add to board meeting agenda. Those firms also note positively (often or sometimes) the actively involvement of outside (independent) directors in board discussions.

However, in response to the boards members interference in decisions made by management about 29% of the firms responded positively (often or sometimes), while about 20% of the firms responded negatively (rarely or never). The responded firms suggested that independent directors need to enhance their attendance at the board meetings, being more prepared and active in board discussion and have better knowledge of the business of the firm which in turn will contribute to improve their performance.

Board Functions and Committees: The survey results show that 57% of the responded firms do not have audit committees, whereas 86% do not have compensation committees on their boards and 71% of the firms have no nomination committees

It is worth mentioning that the audit committee has an important role in enhancing the reliability of the company's financial statements. In USA, for example it was recommended by NYSE, AMEX and NASDAQ that listed firms maintain independent audit committee (prior to Sarbanes-Oxley) after the passage of Sarbanes-Oxley all listed firms were required to maintain audit committee (Petra, 2005)

Compensation committee has the responsibility to evaluate the compensation of the firm's top executive officers including the CEO. The importance of this committee comes from its role in controlling the level of CEO compensation (Petra, 2005) while the main purpose of the establishment of a nominating committee is to nominate individuals for the firm's board of directors. The separation of the board from

the nomination role aim to reduce the role of the board members, and mainly the CEO, in such nominations and choosing individuals who are willing to be advocates to the shareholders and not to the CEO (Petra, 2005). Concerning the CEO and board members evaluation, the boards of the surveyed firms seem to be not active in evaluating CEO performance and compensation, and there is no formal mechanism for evaluating the director’s performance in 57% of the firms.

The controlling owner seems to have the strongest voice in the selection and dismissal of the board member. This point is an indication of the existence of ownership concentration problem in which the controlling owner dominate decision making usually on the expense of minority shareholders’ interests. Boards Roles and Functions: As table 3 shows, more than 90% of the respondents agree that selecting more of truly independent directors will enhance the effectiveness of the boards, 76% of the respondents note about the importance of separating the CEO from the board chairman position. According to Harris and Helfat (1998) combining these two positions is being widely criticized for the reason of potential conflicts of interests and the critics “ask how the board can properly oversee top management if the chairman is also top management”. Although there is no empirical studies prove definite positive or negative effect on corporate performance, the stock market responded negatively to the announcement of such combination. Furthermore, the trend in USA, Canada and UK is going toward recommending the separation of the two positions, while in Germany, Netherlands and Finland such separation is required by law. Furthermore, according to the CIPE (2003) (Center for International Private Enterprise) the separation of the CEO from the board chairman position would be difficult to be adapted by the Middle East and North Africa region, as the majority of companies are family-owned and it is not easy to convince an owner who invested his money in the company to step aside and allow others to manage his money. The big majority of the respondents suggest that it is important to evaluate board, directors and the CEO formally and annually and to disclose boards’ activities more efficiently. Abdul Kadir (1999) argue in a report on corporate governance practices in Malaysian listed companies that many of the listed firms emerged from small, previously private companies which had a good growth prospects, owners of these firms became overnight directors of a public listed firm which is subject to a number of sophisticated law that may not have fully understanding in its majority he called this matter “lack of awareness of responsibility”.

Table 3: Data Analysis for Boards' Independence and Composition

		Selecting more of better qualified, truly independent directors	Separating the CEO from the board chairman position	Formal annual evaluation of the board and directors	Formal CEO evaluation by the board	Better disclosure of board activity
N	Valid	21	21	21	21	21
	Missing	0	0	0	0	0
Mean		1.62	1.95	1.57	1.57	1.48
Minimum		1	1	1	1	1
Maximum		5	5	5	5	5

This table shows the results of data analysis for boards of directors composition and independence, the data was captured from a 5 points likert scale starting from 1 as strongly agree to 5 as strongly disagree.

More than 75% of the respondents suggest that boards of directors should play a significant role in selecting, monitoring and replacing CEOs (mean=2.05). The boards seem to be doing relatively a good job in actively involving in formulating long-term strategies (mean=1.71). the boards seem to be fairly active in ensuring proper disclosure is in place and these disclosure is being actively communicated with shareholders (mean=2.14). Also boards are doing good in ensuring the effectiveness of various governance practices (mean=2.19). When the respondents asked to evaluate the quality of their corporate governance practices compared with that of other listed firms, most of them said that their firms is much or slightly better. This evaluation is seen as subjective and may not have any reliable information. In a ranking question, respondents were asked to rank several tasks according to their effectiveness of

contribution to obtain better corporate governance in Palestine, the result from the respondents' point of view were as follows:

Table 4: Data Analysis of Ranking Tasks for Better Corporate Governance in Palestine

Enhancing the standards of accounting, audit and disclosure	76.9%
Making the internal corporate governance mechanisms work better	74.6%
Reducing ownership concentration	66.9%
Making the external governance mechanisms more effective	65.4%
Prohibiting or tightly controlling some types of related-party transactions	65.4%
Conducting and publicizing corporate governance ratings	63.8%

This table shows the results of the ranking question for tasks that may enhance corporate governance in Palestine.

As it is seen in table 4 above, the task of enhancing the standards of accounting, audit and disclosure was given the most importance relative to other tasks which emphasize our findings in the previous section that transparency and disclosure practices in Palestinian listed firms need to be enhanced. Enhancing the internal corporate governance mechanisms -which is the core of this research-, took the second priority, and the third priority was given to the ownership concentration problem which this research was able to predict, and its symptoms were detected through the analysis of the research data. Finally a cross tabulation conducted to detect any correlation between various variables, the results show a correlation between the relation of the CEO with the founder and the CEO duality, it also prove that there is a correlation between the company size and the availability of an informative web site.

IMPLICATIONS AND FURTHER RESEARCH

The study investigated the PSE firms' compliance with corporate governance best practices. Corporate governance best practices were divided into three main categories: shareholders' rights, boards of directors' composition, and transparency and disclosures. These three main shafts were examined from executives' point of views. Based on executives' opinion, shareholders rights seem to be fairly protected, but assurance of minority shareholders rights need to be investigated which left for further researches; although it seems that there is difficulty in allowing shareholders to participate in decision making which could be related directly the ownership concentration.

A board of directors' independence is Questionable, since they lack many factors that enhance board's independence and CEO duality exists in many of the listed companies. The boards' members are dominated by family members and are largely overlap which may result in minimal influence of shareholders in the decision making processes, and the controlling owner have the strongest voice in selecting and dismissing of the board members. Firms of outside directors on their boards need to enhance those outsiders' attendance, preparation for the boards meetings and their knowledge of the business of the firm they serve. The research indicates a correlation between the relationship of the CEO with the founder or the largest shareholder and the CEO duality. Further, boards of the listed firms need to give more attention to the boards' committees since most of those boards do not have audit, compensation or nomination committees.

Concerning transparency and disclosure issue, annual reports and reports to regulatory agency are the most commonly used means of disclosure by Palestinian listed firms, the internet play a very limited role in the company's disclosure. The research also indicates a correlation between company size in total assets and the availability of an informative web site for that company. Transparency and disclosure appears to have more weight than other corporate governance codes of best practice this is because of the disclosure law enforced by the PCMA and PSE.

According to the executives' views, better governance in the Palestinian firms will be enhanced by enhancing the standards of accounting, audit and disclosure, making internal and external corporate governance mechanism work better, reducing ownership concentration, and tightly controlling some types of related-party transactions. The Palestinian listed firms should intensify its efforts to improve its governance practices and there should be a formal mechanism for evaluating the performance of boards' members and CEOs and The Palestinian Capital Market Authority with the cooperation of the Palestinian legislative council should:

- 1- Undertake a review of the legal and regulatory infrastructure to evaluate its effectiveness in promoting sound corporate governance standards. This must include a review of laws governing shareholder rights, duties of directors, disclosure provisions with particular emphasis on related-party transactions and evaluating the effectiveness of present enforcement mechanisms.
- 2- Ascertain on the importance of developing a Palestinian code of best practices in corporate governance.
- 3- Identify training and education needs for directors, corporate management and shareholders.

Limitations of the Study

The study approached corporate executives' opinions as a measure for good governance, this could result in a subjective evaluations and biases. In addition, lack of awareness on the topic of corporate governance is noticed to exist, that has been discovered from the respondents answers. This limitations may be overcome if the study approaches the analysis of annual reports as evidence of compliance, which can be left for further research.

APPENDIX

Appendix A: Questionnaire Survey on Corporate Governance Practices

To the respondents: Thank you very much for your willingness to join this survey. This survey is conducted with a view to understanding corporate governance practices in Palestine at the firm level. The survey is asking questions on the practices in your firm, regardless of the laws and regulations. Your accurate and frank response is a key. The results will be used only for research purposes and be presented only in aggregate without being revealed by individual firms.

1. *To which of the following sectors does your company belong?*
 - A. Banking Industry.
 - B. Consulting and trade services.
 - C. Pharmaceuticals and chemicals.
 - D. IT (Information Technology).
 - E. Food Industry.
 - F. Others, Please Specify _____.
2. *Company size, Total assets in Dollar amount* _____.
3. *How many employees does your firm have?* _____ / _____ / persons
4. *Is the firm wholly or partially owned and controlled by the government?*
 - A. No
 - B. Yes, substantially owned and controlled by the government
 - C. Partially owned, but not much controlled by the government
 - D. Others --- [Please explain:
5. *What relation does the CEO have with the founder or the largest shareholder?*
 - A. Founder him/herself
 - B. Founder's family member
 - C. Professional manager
 - D. Others --- [Please explain:

6. Show your degree of agreement on the following statements?	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Shareholders are provided with adequate information on the agenda items of the shareholders' meeting					
Shareholders' priority subscription right in the issuance of shares or convertible bonds (so that they can maintain their fractional ownership) is adequately protected in the company's articles of incorporation or in the process of shareholder approval					
It is not difficult to know how much equity ownership the major shareholders control (including the equity shares of companies they control)?					

7. Would it be possible for the director candidates proposed by the management of your firm to fail to be elected at the shareholders' meeting?

- E. Sometimes
- F. Rarely
- G. Unthinkable

8. Approximately, how many shareholders attended the last annual meeting? ----- [] persons.

9. Does your firm disclose the following information? If yes, by what means?

<More than one choice can be made.>

Web: company's web page	AR: annual report
RR: report to regulatory agencies	No: no disclosure

	Web (A)	AR (B)	RR (C)	No (D)
Resume/background of directors				
Major contingent liabilities such as cross-guarantees of debt repayment				
Significant changes in ownership				
Governance structures and policies (explicit corporate governance rules and vision)				
The extent to which the firm's corporate governance practices conform to the established standards				

10. Does your firm disclose semi-annual reports? (A) Yes (B) No

11. Does your firm disclose quarterly financial statements? (A) Yes (B) No

12. Does your firm have a web-site? Is it also in English?

- A. Available and very informative both in local language and English -----
- B. Web-site informative in local language, but limited information in English
- C. Web-site informative in local language, but no English web-site -----
- D. Web-site available only in local language and not very informative-----
- E. No web-site yet

13. Comparing the accounting and audit standards of your firm with the relevant international standards (such as IAS and ISA) how would you find it ?

- A. Virtually the same
- B. Some relaxation
- C. Substantially lower
- D. Not sure

14. How many directors does your (supervisory) board have in total? ----- []

15. How many outside (Independent) directors does your board have?----- []

16. Are there any foreign nationals on your board? (A) Yes (B) No

17. Does the CEO of your firm also serve as board Chairman? (A) Yes (B) No

18. *Do you have the following person on your board now (as a director)?*
- Current or former officer of a major creditor financial institution (A) No (B) Yes
 - Officer of an affiliated company (A) No (B) Yes
 - Senior manager from a supplier or customer company (A) No (B) Yes
 - Someone from a law/accounting/consulting firm that provides professional services to your firm. (A) No (B) Yes

If your board contains an Independent director then answer questions #:19,20 If not then go to question #: 21.

19. <i>How prevalent are the following practices?</i>	Often (A)	Sometimes (B)	Rarely (C)	Never (D)
Independent directors meeting formally or informally without management to discuss corporate matters				
Independent directors altering or adding the board meeting agenda set by the CEO				
Independent directors participating actively in board discussions				
Board members actively interfere in decisions made by management				

20. <i>Do you think that the following tasks will contribute to the better performance of outside directors?</i>	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Better attendance at the board meetings					
Better preparation for, and more active participation in, board discussion					
Better knowledge of the business of the firm					

21. *Does your board have the following committees?*
- Audit Committee (A)Yes [], (B) No
 - Compensation Committee (A) Yes [], (B) No
 - Nomination Committee (A) Yes [], (B) No
22. *Does your board or compensation committee formally evaluate the CEO's performance?*
 (A) Yes, as a routine (B) Sometimes (C) Rarely (D) Never
23. *How many board meetings were held last year?*
 (A) 2-3 times (B) 4-5 times (C) 6-7 times (D) 8 times or more
24. *What was the average attendance rate for board meetings?*
 (A) 90-100% (B) 80-90% (C) 70-80% (D) 60-70% (E) 50-60%
25. *Is there any formal mechanism for evaluating the performance of directors?*
 (A) Yes, and effective (B) Yes, but ineffective (C) No formal mechanism
26. *Who has the strongest voice in the selection and dismissal of independent directors?*
 A. Board or nomination committee (autonomously)
 B. CEO
 C. Controlling owner (who is not the CEO)

27. <i>What do you think about the following tasks for the purpose of enhancing the Effectiveness of the board?</i>	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Selecting more of better qualified, truly independent directors					
Separating the CEO from the board chairman position					
Formal annual evaluation of the board and directors					
Formal CEO evaluation by the board					
Better disclosure of board activity					

28. Do you agree that your board is active in and makes much contribution to the following tasks?	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Actively involved in formulating long-term strategies Plays an important role in selecting, monitoring, and replacing the CEO Ensures proper disclosure and actively communicate with shareholders and stakeholders Ensures the effectiveness of various governance practices					
29. What is your view of corporate governance in your firm compared with other Exchange-listed firms? (A) Much better (B) Slightly better (C) About the same (D) Slightly worse (E) Much worse					
30. Which of the following tasks do you think is most effective for better corporate governance in Palestine? <Write 1, 2, ...6 starting from the most important.> <ul style="list-style-type: none"> - Making the internal corporate governance mechanisms (such as shareholder participation and the role of the board) work better [] - Making the external governance mechanisms (such as hostile M&A) more Effective [] - Enhancing the standards of accounting, audit and disclosure [] - Conducting and publicizing corporate governance ratings [] - Prohibiting or tightly controlling some types of related-party transactions (like lending to directors or senior officers and cross-guarantees of repayment) [] - Reducing ownership concentration (by tighter control of cross-shareholding or pyramid ownership structure, etc.) [] 					

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COMPREHENSIVE INCOME IN TIMES OF CRISES: EVIDENCE FROM SPANISH COMPANIES

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ABSTRACT

Given the increasing importance of comprehensive income as an indicator of corporate performance internationally, especially since the revision of International Accounting Standard 1 (IAS 1) by the International Accounting Standards Board (IASB) in 2007, in this paper we intend to assess its impact on the more traditional net income during the period 2004-2008 for the select group of the Spanish IBEX-35 listed companies, pursuant to the information disclosed in accordance with said IAS. This will allow us to verify the importance of comprehensive income for the corporate groups at a time of serious financial and economic crisis as was 2008. The non-parametric Wilcoxon Signed-Rank Test was used to perform the corresponding statistic comparisons, as the variables did not conform to normalcy. The results showed a statistically significant impact of comprehensive income on net income for three of the five years that were studied, especially for 2008, when there was a spectacular decline in corporate performance when considering the impact of the first on the second. This confers more informational relevance to comprehensive income, being much more in tune with market reality than traditional net income.

JEL: M41

KEYWORDS: Comprehensive Income, Net Income, Times of Crises, Spanish Companies (IBEX-35)

INTRODUCTION

The most influential accounting standard setters around the world, among which are the Accounting Standards Board (ASB), (FRS 3, 1992, revised in 1993, 1999 and 2007), the Financial Accounting Standards Board (FASB), (SFAS 130, 1997), and the IASB (IAS 1, 1997, revised in 2003 and 2007), require that companies disclose their comprehensive income, considered in the Statement of Financial Accounting Concepts (SFAC 6, 1985, par. 70) by FASB as all changes in equity during a period except those resulting from investments by owners and distributions to owners.

This is determined by adding to net income the expenses and revenues that the regulations state should be directly recognized in equity, such as unrealized gains and losses in available-for-sale securities, adjustments associated to derivatives and cash flow hedges, and certain foreign currency translation adjustments. Thus, we have an accounting income more in tune with market reality than the more traditional net income.

The importance of comprehensive income as an indicator of corporate performance internationally is increasing, especially since the revision of IAS 1 by the IASB in 2007. We have reviewed current literature and in this paper we assess the impact of comprehensive income on the more traditional net income during the period 2004-2008 for the select group of Spanish IBEX-35 listed companies, pursuant to the information disclosed in the Consolidated Financial Statements in accordance with the International Financial Reporting Standards (IFRS) by IASB, and in particular with the aforementioned IAS 1.

As the period 2004-2008 comprised years of economic and stock market expansion, with steep drops in the stock markets in 2008, we have a period that allows us to assess the importance of comprehensive income compared to net income in the corporate groups during the years of economic bounty as opposed to 2008, which saw a serious economic crisis and drops in the international stock markets.

In order to perform the pertinent statistical contrasts it may have been suitable to use the paired T-test for the case of two related samples, but the variables did not conform to normalcy in any of the years studied. Therefore it was considered more appropriate to use the alternative non-parametrical Wilcoxon Signed-Rank Test.

The results of our study, in line with the pioneering work of Sousa (2009a), and Sousa and Carro (2009b), show a statistically significant impact of comprehensive income on net income for three of the five years that were studied, especially for 2008 when there was a spectacular decline in corporate performance. This confers more informational importance to comprehensive income, much more in tune with market reality than the traditional net income.

The general layout of the paper is as follows: we first present a Literature Review section outlining the essential conceptual foundations that comprehensive income is based on, with references to the empirical research carried out internationally in recent years. In the Data and Methodology section we then justify the choice of companies comprised in the sample and the information taken from their annual reports, as well as the contrast tools used for the research. The Empirical Results section contains the tables and figures that show the empirical evidence of our paper, with the corresponding analyses and comments. Lastly we present the Conclusions, which show the main findings, the limitations encountered and the future lines of research that this study lead to.

LITERATURE REVIEW

We must first define the essential theory on which comprehensive income is based as a foundation for our research, and then review the empirical literature produced internationally in recent years.

The FASB was the first standard-setter to incorporate the concept of comprehensive income in the SFAC 3 (1980), replaced by SFAC 6 (1985), where this concept is defined in paragraph 70 as “the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. It includes all changes in equity during a period except those resulting from investments by owners and distributions to owners”.

As we can see, this is close to the British Nobel award winner Hicks’ (1939, p. 172) concept of income. As he established in his book *Value and Capital*, the aim of calculating income is to show how much an individual can consume without becoming impoverished, for which he developed the following central concept of income: “A man’s (*sic*) income is the maximum value which he can consume during a period and still expect to be as well off at the end of the period as he was at the beginning”.

If we transfer this concept to Accounting, according to Alexander (1950, p. 15), the profit of a business corporation can be defined as the amount of dividends that a company can distribute to shareholders without reducing the capital invested, that is, to be as well off at the end of the year as it was at the beginning.

This concept would evidently lead us to the *clean surplus* theory (Brief and Peasnell, 1996; Feltham and Ohlson, 1995; Beale and Davey 2000; and Mattessich, 2002; among others), according to which profit is determined comparing the book value of equity at the end of a financial year with that registered at the beginning of the year, without the shareholders’ operations.

In short, as referred by Linsmeier *et al.* (1997) and Sousa (2007 and 2009b), by adopting comprehensive income we have such an important event in Accounting at the beginning of the 21st century as is the approach to the economic concept of income advocated by authors of the classical normative-deductive approach several decades ago (MacNeal, 1939; Edwards and Bell, 1961; Alexander, 1950; Moonitz, 1961, and Sprouse and Moonitz, 1962, among others). However, it is not conceived as a sole and unquestionable *a priori* magnitude, but rather devised to satisfy the needs of the users, particularly of investors, given that it contributes to the efficient functioning of the market and to usefulness of the accounting information for market valuation of corporations (Mora, 2004, p. 10).

When looking at the international empirical literature on comprehensive income produced in recent years, we find that some descriptive research projects analyze the importance of comprehensive income for corporations as opposed to the more traditional net income (Luecke and Meeting, 1998; Bhamornsiri and Wiggins, 2001; Pandit *et al.*, 2006; among others).

Likewise, another set of research projects concentrate on the capital market (Dhaliwal *et al.*, 1999; O'Hanlon and Pope, 1999; Hodder *et al.*, 2006, among others), and aim to prove along general lines whether comprehensive income would explain stock returns better than net income.

On the other hand, some research projects analyze the impact of comprehensive income on net income from different viewpoints [Sousa (2008a, 2008b, and 2009a), and Sousa and Carro (2009a, 2009b and 2009c)]; whereas others concentrate on studying the impact that presentation formats have on analysts and investors (Hirst and Hopkins, 1998; Maines and McDaniel, 2000; and Hunton *et al.*, 2006).

From the aggregate of representative research on comprehensive income produced internationally in recent years, the works of Sousa (2008a) and Sousa and Carro (2009a) centre on issues similar to our research. However, these authors work with samples and periods that differ from ours, and do not include the effects of the serious economic crisis that began showing in 2008, thus our study will provide empirical evidence on aspects as yet not investigated.

We also consider that our research may contribute to the international debate on the presentation of corporate performance, set forth in the EFRAG-ICAC (2006) document, Cauwenberge and Beelde (2007), and the joint project on financial statement presentation by the IASB (2009) and the FASB (2009), among others.

DATA AND METHODOLOGY

We took as reference for our research the information disclosed in the Consolidated Annual Reports of the IBEX-35 listed companies pursuant to the IFRS by the IASB, especially pursuant to IAS 1, for the years 2004-2008. This information is available on the website of the Spanish Stock Exchange Commission (CNMV) and on the websites of the listed companies. Given that this period comprised years of economic and stock exchange expansion as well as 2008, a year of great recession and drop of the Stock Markets around the world, this will allow us to confirm the extent to which comprehensive income, as opposed to net income, affects corporate groups under very unfavorable economic and financial circumstances.

We have also limited our research to the companies listed on the IBEX-35 (*Iberia Index*) drawn up by Bolsas y Mercados Españoles (BME), which is a capitalization-weighted stock market index, comprised of the 35 most liquid Spanish stocks traded in the continuous market, and is the benchmark index for the Bolsa de Madrid (the Madrid Stock Exchange). Among other listed companies, the following are comprised in this index: Telefonica, Banco Santander Central Hispano, Banco Bilbao Vizcaya Argentaria, Repsol, and Endesa; large Spanish corporations that are present worldwide, especially in Latin America.

From January 1st, 2005 all of the listed companies in the European Union have the obligation to formulate their consolidated financial statements pursuant to the IFRS by the IASB. This, in addition to the current convergence of the economic information models with the IASB regulations, not only at a European level, but worldwide, makes our research current and of international interest given that we work with a sampling of the 35 most liquid Spanish listed companies that apply these regulations.

On the other hand, as we wish to empirically evaluate the impact of comprehensive income on net income for the aforementioned sample and period, it may be suitable to compare the medians between both types of results with the paired T-test for the case of two related samples. Nevertheless, as shown in table 1 and in accordance with the one-sample kolmogorov-smirnov test, we rejected the null hypothesis of normalcy for the variables made up of the differential between comprehensive income and net income in the years 2004-2008.

consequently, as the variables in some of the years of the study did not conform to a normal distribution, we must use the alternative non-parametric wilcoxon signed-rank test for the comparison, with a 95% confidence level, which leads us to a $p < 0.05$ significance. This non-parametric test contrasts the null hypothesis that the medians of two related variables are the same, which applied to the specific field of our research allows us to determine whether comprehensive income differs significantly from net income for the group of the 35 ibex-listed companies in the years 2004-2008.

Table 1: One-Sample Kolmogorov-Smirnov Test

		CI-2004 -NI-2004	CI-2005 -NI-2005	CI-2006 -NI-2006	CI-2007 -NI-2007	CI-2008 -NI-2008
	N	35	35	35	35	35
Normal parameters ^a	Mean	15.65 224.97	286.73 556.51	-73.74 259.15	-155.33 490.54	-965.93 1,874.29
	Standard Deviation					
	Absolute	0.279	0.321	0.270	0.286	0.314
Most extreme differences	Positive	0.279	0.321	0.186	0.223	0.246
	Negative	-0.258	-0.264	-0.270	-0.286	-0.314
Kolmogorov-Smirnov Z		1.651	1.902	1.595	1.693	1.855
Asymp. Sig. (2-tailed)		0.009	0.001	0.012	0.006	0.002

Test distribution is Normal. This Table shows the contrast of normalcy of the variables made up of the differential between comprehensive income (CI) and net income (NI) in the years 2004-2008 for the IBEX-35 listed companies.

As we know, the paired T-test for two related samples is used in many areas of human knowledge, or its alternative in non-parametric tools, the Wilcoxon Signed-Rank Test, which we used in our research to contrast whether significant differences exist between two measurements taken for each of the subjects comprised in our sample, one before and the other after introducing a certain treatment or stimulus.

In this paper, we decided to take two measurements of corporate performance such as comprehensive income and net income. This will allow us to evaluate whether the aggregate of the items included in comprehensive income, in particular, the revenues and expenses that should initially be recognized in equity, significantly affect corporate performance.

EMPIRICAL RESULTS

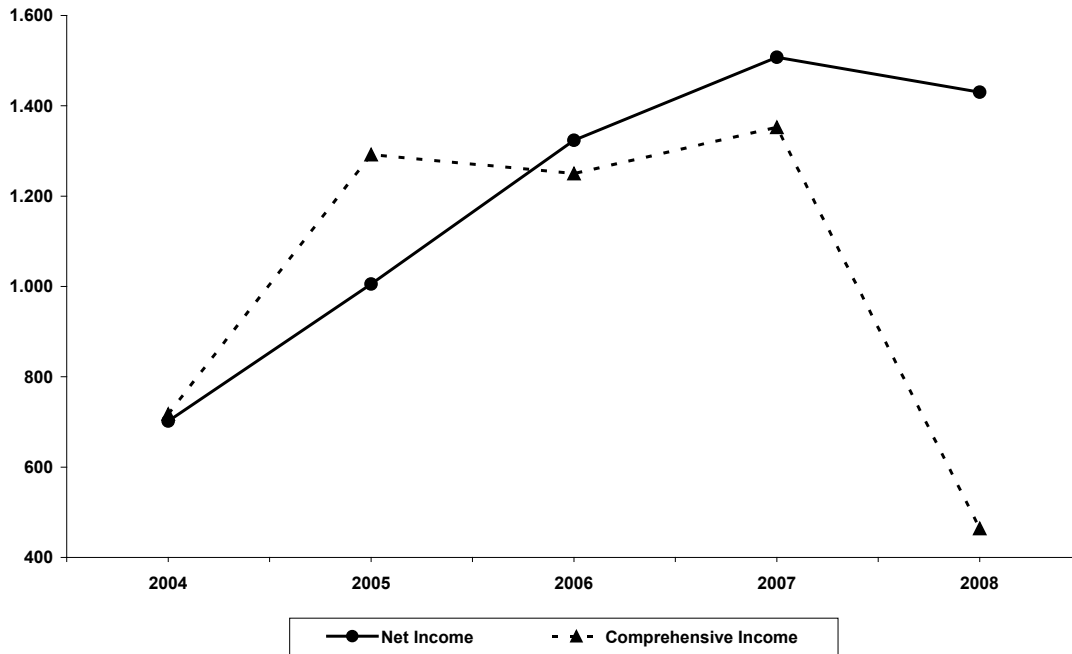
We now proceed to the disclosure and analysis of the results of our research. Table 2 contains the descriptive statistics of the variables that our research is based on, and Figure 1 shows their means profile throughout the study period. Likewise, Figure 2 shows the IBEX-35 behavior during the years studied in our research.

Table 2: Descriptive Statistics

Variable	N	Mean	Standard Deviation	Minimum	First Quartile	Median	Third Quartile	Maximum
NI-2004	35	701.69	1,019.50	-44.60	135.80	332.80	695.00	3,996.20
CI-2004	35	717.34	989.67	-71.20	80.00	411.70	697.60	3,703.50
NI-2005	35	1,005.34	1,570.31	-10.00	152.10	396.00	834.90	6,749.80
CI-2005	35	1,292.07	2,080.72	-58.00	155.70	474.30	1,268.80	8,049.30
NI-2006	35	1,323.78	1,899.39	45.70	200.20	608.60	1,388.60	8,245.80
CI-2006	35	1,250.04	1,832.41	18.60	170.20	700.00	1,478.80	8,039.40
NI-2007	35	1,507.67	2,340.93	2.00	223.00	787.60	1,336.60	9,636.20
CI-2007	35	1,352.35	2,020.26	-182.00	222.70	731.90	1,326.30	8,423.00
NI-2008	35	1,430.02	2,479.00	-1,650.00	182.40	397.40	1,257.70	9,332.40
CI-2008	35	464.09	1,604.98	-3,660.00	-110.00	244.10	871.50	6,447.00

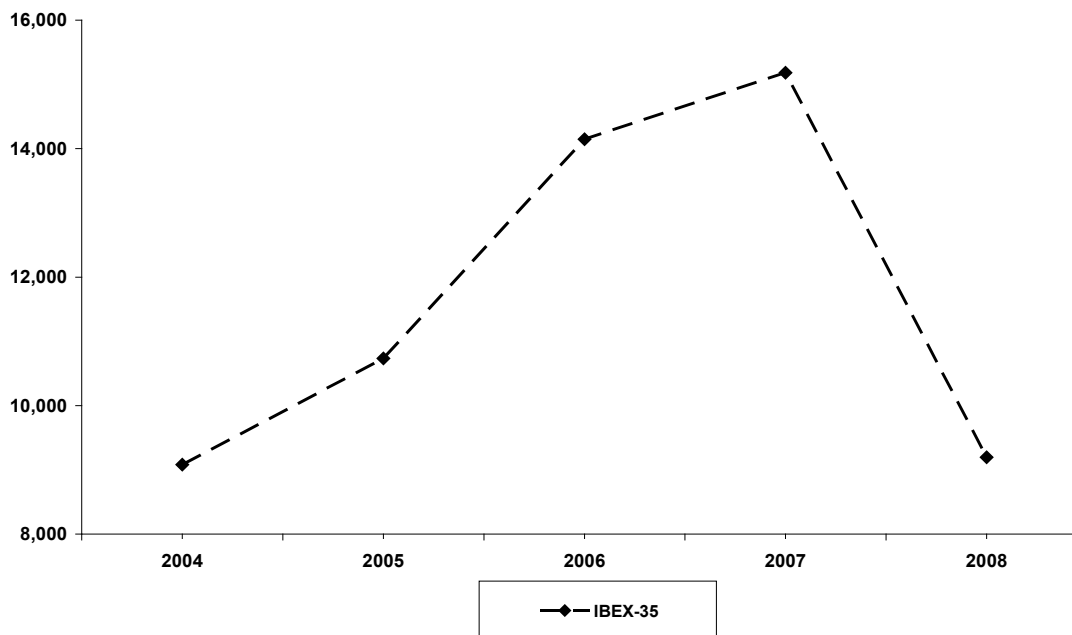
This Table shows the descriptive statistics for Comprehensive Income (CI) and Net Income (NI) in the years 2004-2008 for IBEX-35 Listed Companies.

Figure 1: Behavior of the Means of Comprehensive Income (CI) and Net Income (NI) for the Years 2004-2008 for IBEX-35 Listed Companies



This Table shows the behavior of the means of Comprehensive Income (CI) and Net Income (NI), expressed in million Euros, for IBEX-35 listed companies at the end of each of the years during the period 2004-2008.

Figure 2: Behavior of the IBEX-35 during the Period 2004-2008



This Figure shows the behavior of the IBEX-35 at the end of each of the years from 2004-2008, with values expressed in dots on said index.

In keeping with the years of stock market expansion 2004-2007, when a large rise in the IBEX-35 was registered according to Figure 2, net income, and to a lesser degree comprehensive income, also showed noticeable increases as shown in Figure 1.

The serious 2008 crisis that led to the drop in international stock markets also severely affected the aggregate of IBEX-35 listed companies, with spectacular losses in the index for that year. However, it is noteworthy within this context of serious economic and stock market crisis that net income and comprehensive income do not follow the same behavior pattern in keeping with the descriptive statistics under analysis.

This shows that net income for the aggregate of the listed companies is practically immune to the serious 2008 crisis, whereas comprehensive income causes a spectacular decline in the corporate groups' performance, showing a behavior that is practically parallel to the large drop in the IBEX-35. On the other hand, with the help of the boxplot analysis and as shown in Table 3, we wanted to identify the specific impact of comprehensive income on net income on the corporate groups, based on the extreme scores and outliers registered in each of the years studied.

Table 3: Extreme Scores (*) and Outliers (o) Regarding the Relative Impact of Comprehensive Income (CI) on Net Income (NI) during the Period 2004-2008

LISTED COMPANIES	INDUSTRIES	YEARS OF THE PERIOD 2004-2008					Mean 2004-2008
		2004	2005	2006	2007	2008	
Abengoa	Basic Materials, Industry and Construction	- 35	52	- 74 o	96 *	-166	-5.4
Acerinox	Basic Materials, Industry and Construction	- 10	90	- 36	- 96 o	- 397 o	-89.8
Actividades de Construcción y Servicios	Basic Materials, Industry and Construction	- 10	16	- 7	37 o	- 68	-68
Cintra	Consumer Services	- 60	- 480 *	- 32	- 9,200 *	- 2,528 *	-2,460
Criteria Caixacorp	Financial and Real Estate Services	133 *	65	- 16	35 o	- 277	-277
Ferrovial	Basic Materials, Industry and Construction	0	- 17	10	- 53 o	- 122	-122
Grifols	Consumer Goods	-50 o	129 o	-59 o	- 68 o	12	-7,2
Iberdrola Renovables	Oil and Energy	- 37	2	4	-161 *	12	-36
Iberia	Consumer Services	2	1	5	- 9	- 838 *	-167.8
Obrascón Huarte Lain	Basic Materials, Industry and Construction	- 41	47	- 59 o	- 21	- 180	-50.8
Sacyr Vallehermoso	Basic Materials, Industry and Construction	71 o	- 14	- 29	- 13	- 118	-20.6
Telecinco	Consumer Services	- 89 *	0	0	8	0	-16.2

This Table shows the extreme scores () and outliers (o) for the IBEX-35 listed companies regarding the relative impact of Comprehensive Income (CI) on Net Income (NI) for the period 2004-2008, measured as $[(CI - NI) / |NI|] \cdot 100$. In this formula, we had to take absolute value in the denominator so that the sign effect would not distort the reality of the studied relative impact.*

The extreme scores, which appear in Table 3 marked with an asterisk (*), are defined as scores that are greater than 3 box lengths away from the upper or lower edge of the box. The outliers, which are noted with a circle (o), are defined as scores that are between 1.5 and 3 box lengths away from the upper or lower edge of the box.

We see that a significant number of corporate groups, practically 35% of the sample, show extreme scores and/or outliers for at least one year of the five-year span, with a number of negative values, some of which are remarkable. This generally denotes the noticeable negative impact of comprehensive income on net income, especially for a year of such serious economic crisis as was 2008.

After the analysis of the statistics that describe the net income and comprehensive income behavior for the study sample and period, along with their association with the IBEX-35 behavior, we proceed to perform the corresponding comparisons which will ultimately determine whether there are statistically significant differences between both types of result and, if any, in which specific years.

Table 4 shows the negative, positive and tied ranks, along with the means and sums of ranks in the net income and comprehensive income comparison for each of the years studied.

Table 4: Ranks of Wilcoxon Signed-Rank Test

	N	Mean Ranks	Sum of Ranks
Negative Ranks	21 ^a	15.00	315.00
NI-2004 Positive Ranks	13 ^b	21.54	280.00
CI-2004 Ties	1 ^c		
Total	35		
Negative Ranks	8 ^d	11.38	91.00
NI-2005 Positive Ranks	25 ^e	18.80	470.00
CI-2005 Ties	2 ^f		
Total	35		
Negative Ranks	16 ^g	23.31	373.00
NI-2006 Positive Ranks	18 ^h	12.33	222.00
CI-2006 Ties	1 ⁱ		
Total	35		
Negative Ranks	24 ^j	18.56	445.50
NI-2007 Positive Ranks	10 ^k	14.95	149.50
CI-2007 Ties	1 ^l		
Total	35		
Negative Ranks	26 ^m	19.85	516.00
NI-2008 Positive Ranks	8 ⁿ	9.88	79.00
CI-2008 Ties	1 ^o		
Total	35		

a. NI-2004 < CI-2004; b. NI-2004 > CI-2004; c. NI-2004 = CI-2004; d. NI-2005 < CI-2005; e. NI-2005 > CI-2005; f. NI-2005 = CI-2005; g. NI-2006 < CI-2006; h. NI-2006 > CI-2006; i. NI-2006 = CI-2006; j. NI-2007 < CI-2007; k. NI-2007 > CI-2007; l. NI-2007 = CI-2007; m. NI-2008 < CI-2008; n. NI-2008 > CI-2008; o. NI-2008 = CI-2008.

This Table shows the sums and means of the ranks in the Wilcoxon Signed-Rank Test for Comparison of Net Income (NI) and Comprehensive Income (CI) for IBEX-35 Listed Companies in the years 2004-2008. These ranks will be the reference for the comparisons shown in Table 5.

As the comparisons by difference are performed with net income (NI) as minuend and comprehensive income (CI) as subtrahend, a positive rank evidently denotes a higher value of the first as opposed to the second and vice versa.

Since a clear predominance of positive ranks is found only in 2005, and very slightly in 2006, the number of corporate groups for which comprehensive income (CI) exceeds net income (NI) is higher in these years only.

However, as a consequence of the strong negative impact of comprehensive income (CI) on net income (NI), negative ranks as well as their sums and medians largely exceed positive ranks in the years 2004, 2007, and especially in a year of serious crisis as was 2008.

The behavior of the positive and negative ranks that we have just analyzed lead to statistically significant differences between comprehensive income and net income in the years 2005, 2007, and 2008, with $p < 0.05$, particularly in 2008, with $p = 0.00$.

Table 5: Contrast Statistics for the Wilcoxon Signed-Rank Test

	NI-2004 CI-2004	NI-2005 CI-2005	NI-2006 CI-2006	NI-2007 CI-2007	NI-2008 CI-2008
Z	-0.299 ^a	-3.386 ^b	-1.291 ^a	-2.530 ^a	-3.736 ^a
Asymp. Sig. (2-tailed)	0.765	0.001 **	0.197	0.011 **	0.000 **

a. Based on negative ranks.

b. Based on positive ranks.

This Table shows the contrast statistics of the Wilcoxon Signed-Rank Test for Comparison of Net Income (NI) and Comprehensive Income (CI) for IBEX-35 Listed Companies in the period 2004-2008. As we are working with a 95% confidence level, the test's significance for each year is determined by $p < 0.05$.

Given this empirical evidence, we can state that comprehensive income has a significant impact on net income in three of the five years studied, and especially in 2008, when there was a serious economic crisis and drop in the Stock Markets.

On the other hand, it is worth mentioning that Sousa's work (2008a) with a sample of ninety-two Spanish companies listed on the Madrid Stock Exchange —instead of the select group of IBEX-35 listed companies subject of this research— also evidenced statistically significant differences in the impact of comprehensive income on net income, specifically for the years 2004-2007. However, as we are proving, our research provides additional empirical evidence as it takes into account the crisis effect.

Likewise, Sousa and Carro (2009a), who worked with a different sample over a different period, looked at 136 European companies listed on the New York Stock Exchange and NASDAQ during the period 1999-2004, and they found a statistically significant impact of comprehensive income on net income for the years 1999, 2001, 2002, and 2004.

Taking into account the empirical evidence found in our research, as well as in the aforementioned studies, the statistically significant differences found in a large number of years for different samples and time periods are mainly due to the consideration of the new elements comprised in comprehensive income, namely the unrealized gains and losses in available-for-sale securities, adjustments associated with derivatives and cash flow hedges and certain foreign currency translation adjustments. This implies a much broader perspective that is more in tune with market reality than the traditional net income.

Therefore, a measurement of corporate performance shows the market impact much more clearly, as happened with the current crisis, if an all-inclusive concept of income is used as opposed to the more traditional net income measure. This also provides more information for users and particularly for investors, who are considered as primary users.

CONCLUSIONS

The importance of comprehensive income as an indicator of corporate performance is increasing, especially due to the revision of IAS 1 by the IASB in 2007. Thus, we are witness to a configuration of corporations' profits that is much more in tune with market reality than other measurements of profit such as the more traditional net income.

We have empirically studied the impact of comprehensive income on net income within the context of these trends in international financial information, using as a reference the corresponding consolidated information of the select group of Spanish IBEX-35 listed companies for the period 2004-2008.

When performing the contrasts with the Wilcoxon Signed-Rank Test, we found statistically significant differences between both ranks for the years 2005, 2007, and 2008 as $p < 0.05$, and specifically for 2008, with $p = 0.00$. Given this empirical evidence, we can state that comprehensive income had a significant impact on net income in three of the five years studied, and especially in 2008, when there was a serious economic crisis and drop in the Stock Markets.

Therefore, it is now evidenced that the market impact is shown much more clearly if comprehensive income or an all-inclusive concept of income is used as opposed to the more traditional measure of net income, as has happened with the current serious crisis. This in turn provides more information for users and particularly for investors, who are considered as primary users in the English-speaking accounting models, towards which the accounting models of the rest of the world are leaning.

Likewise, the empirical evidence provided in our research may entail another element to add to the current debate in international accounting literature and regulations regarding the need for alternative measurements of corporate performance, such as comprehensive income, which is distant from the historical cost accounting model and represents a reference that is much more in tune with market reality than the traditional net income.

Lastly, even though our research was carried out with information disclosed by the main Spanish companies, we consider that we have placed a limitation on our work, having centered our study only on this sample. This consequently opens new lines of research, aiming to verify the impact of comprehensive income on net income in a context of economic crisis taking into consideration different company samples.

This research should be extended to work with different samples, among other possibilities a sampling of North American companies with information disclosed on comprehensive income pursuant to SFAS 130 of the FASB from 1997 onwards, or a sample of European Union listed companies, because as of the first of January 2005 they are obliged to disclose comprehensive income in their consolidated statements pursuant to IFRS of the IASB.

This would allow to assess the impact of comprehensive income on net income in times of crises, such as the beginning of the year 2000 and currently as of 2007, with a larger and wider sample that would allow us to prove the extent to which empirical evidence is similar to that of our present research.

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A STUDY OF BANK CUSTOMERS' PERCEIVED USEFULNESS OF ADOPTING ONLINE BANKING

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Cheng-Lung Li, Kun Shan University
Hsing-Hui Lin, Texas Tech University

ABSTRACT

As information technology rapidly changes the fabrics of industries in recent years, the trade of online banking has become more diversified. Specializing in unlimited, speedy and convenient services, online banking has transformed traditional banking in many countries. The managements' ability to anticipate and respond to such changes in the financial marketplace, thus, has a decisive influence on the success or failure of many retail banks. The present study, exploratory in nature, was intended to develop a comprehensive conceptual framework from which researchers could empirically examine and explain the relationship between customers' perceived usefulness of online banking and the relative advantages of online banking, its website quality, knowledge & support, information quality and customer trust in Taiwan. Multiple regressions were conducted to test the above-mentioned relationships. The statistical results show that relative advantages, trust and perceived ease of use are more important and critical to customer's intension of online banking adoption. This study further offers a marketing insight for managers to effectively deploy online system and service. In designing online banking services, software developers should pay close attention to informative content that will be, above all, perceived by customers as useful and relevant.

KEYWORDS: Online banking, technology acceptance model (TAM), perceived usefulness, perceived ease of use, relative advantage, website quality, knowledge & support, information quality, trust.

INTRODUCTION

As information technology rapidly changes the fabrics of industries in recent years, the trade of electronic banking has become more and more diversified. Specializing in unlimited, speedy and convenient services, on-line banking has transformed traditional banking in many countries (Angelov, Hilgert & Hogarth, 2004; Lichtenstein & Williamson, 2006). The managements' ability to anticipate and respond to such changes in the financial marketplace, thus, plays a pivotal role in the success or failure of retail banks (Gan, Clemes, Limsombunchai & Weng, 2006).

There is no doubt that the web is now transforming all facets of business, and its impact on customer service has been felt on a daily basis. Pure service organizations, such as banks, provide electronic services to their customers. Because of the ever-increasing revenues generated by online services, it is essential that the organizations using this avenue get it right, lest that they risk losing a major source of income. Business firms with poor online service are guaranteed to lose their competitive edge to those who invest in carefully designing their services and are well organized and smoothly delivering (Gronfeldt & Strother, 2006).

In light of current prevalence of online banking, commercial banks in Taiwan have been trying to popularize and improve their online banking systems (Wang, Wang, Lin, & Tang, 2003). However, performance of Taiwan's banking industry has deteriorated over the last few years – foreign banks have the highest ROE and EPS (Liu, 2007). The increasing use of online banking as an additional channel of marketing banking service has significantly improved the financial performance of community banks in the U.S. (Acharya, Kagan, & Lingam, 2008). While banks are fully experienced in capturing economies of scale, developing business in international trade, increasing market prowess and creating "brand" image with the physical side of their operations, online banking presents a different set of challenges (Avery, Baradwaj, & Singer, 2008). Moreover, companies with poor online service are bound to lose its competitive edge to those who invest in making their service carefully designed, well organized and smoothly delivered (Gronfeldt & Strother, 2006). To guide our study, we utilized Davis's Technology Acceptance Model (TAM) and conducted a face-to-face survey to investigate customer's intension of online banking adoption in Taiwan banking industries.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Technology Acceptance Model (TAM): The Technology Acceptance Model (TAM) was illustrated by Davis (1989) to predict the acceptance and use of new information technology (software and information systems) within organizations. This model focus on two theoretical constructs perceived usefulness (PU) and perceived ease of use (PEOU). Both of which will influence customers' intention of using the system. Both have significantly influenced customer interaction with online banking and have in recent years been documented by studies incorporating various external variables (Pikkarainen, Pikkarainen, Karjaluoto & Pahlila, 2004; Wang et al., 2003; Cheng, Lam, & Yeung, 2006, Al-Somali, Gholami & Clegg, 2009). In the present study, the original construct perceived usefulness and perceived ease of use, along with other variables such as relative advantages, website quality, knowledge and support, information quality and trust, were adopted for an empirical test. Following is a brief review of previous studies on these constructs.

Perceived Usefulness and Perceived Ease of Use: The technology acceptance model (TAM) focuses on two theoretical construct, perceived usefulness (PU) and its perceived ease of use (PEOU) which influence consumers' intention of using the system. Davis (1989) referred to perceived usefulness as the degree to which a person believes that using a particular system will enhance his or her performance. Perceived ease of use is defined as the extent to which a person believes that using a particular system would be free of effort. Previous studies (Amin, 2007; Cheng et al., 2006; Al-Somali et al., 2009) have found that perceived ease of use has a positive effect on perceived usefulness. On the basis of these findings, the following hypothesis for investigating the customers of Taiwan's domestic banks is formulated:

Perceived Usefulness and Relative Advantages: In recent years, many researchers have found that consumers are aware of such advantages of online banking as accessibility, ease of use, abundant information, reliability and time and monetary savings, all of which are critical to the success of online banking (Cai, Yang, & Cude, 2008; Pikkarainen et al., 2004; Poon, 2008). Moreover, online-banking users are more likely to perceive relative advantages of the services (e.g., usefulness, ease of use, accessibility, amount of information, etc.), whereas the nonusers are more likely to perceive relative disadvantage of the services (e.g., security and privacy issues) (Cai et al., 2008).

Website Quality: According to Swaid and Wigand (2007), web presence supports not only traditional activities, but also new opportunities that arise from using the web as a new channel to conduct business-to-customer electronic commerce transactions. Floh and Treiblmaier (2006) noted that banks have to redesign their Web sites with an eye to enhancing usability and usefulness, because the quality of Web sites has a direct and an indirect impact on both satisfaction and trust. Lichtenstein and Williamson (2006), using a combination of individual and focus-group interviews to identify consumer adoption of internet banking in Australia, found that participants were impatient about not obtaining immediate assistance, unconfident in finding information quickly from online databases and considered on-line banking difficult to use. Floh and Treiblmaier suggested that financial institution improve their screen designs and have their navigation combined with an integrative banking system.

Knowledge & Support: If consumers lack adequate knowledge about financial services, they may not be able to make favorable decisions based on their presumptions. The lack of financial knowledge may affect an individual's or a family's capacity to make a long-term placement, which in turn results in a position that is sensitive to descents in their economy. Technological illiteracy, as with financial illiteracy, may negatively affect consumers' use of financial services in a technologically intensive context (Nilsson, 2006). During the interview of their study, Lichtenstein and Williamson (2006) found that access to required knowledge and to sources of assistance in Australia was inadequate. Such access inadequacy is experienced by the service providers-- i.e., bank personnel-- themselves. Most participants believed that this sort of access should have been made available through face-to-face contact with bank personnel, online chat or telephone. Participants also complained that many bank personnel knew very little about internet banking and how it worked. They felt that support was needed even prior to demonstrating or tutoring how to register in the form, so that a prospective user would know how internet banking worked, with suggestions including training continuously at the branches. Support is also needed for initial registration and set up. The major discovery of Lichtenstein and Williamson (2006) is that there is a need for extensive and more advanced consumer support from the bank, especially in terms of the immediate

support-oriented knowledge provided by bank personnel via interactive channels.

Information Quality: Information quality refers to the quality of report that the system produces. In the Web environment, the information is related to not only the report but also the user presentation (Ahn, Ryu & Han, 2004). The amount of information available has a positive effect on the use of online banking (Pikkarainen et al., 2004). The information provided in the virtual communities on the internet must be accurate, complete, current, customized for the user and presented in an easy-to-use format (Nelson, Todd, & Wixom, 2005). Information quality (IQ) denotes how good the system is in terms of its output. It is measured by information accuracy, completeness, currency and format of information presentation (Nelson et al., 2005).

Trust

A major concern in both money and banking is a lack of trust between customers and the banks (Schaefer, 2005). Customers require that the Website and the information it contains be trustworthy and secure. Companies that breach customers' trust may suffer a serious loss of patronage. This trust applies not only to the information obtained by the Website users but also to the information given to the company via the Website (Loiacono, 2000).

Online trust is built through belief that (1) the vendor has nothing to gain by cheating, (2) there are safety mechanisms built into the Web site, (3) there is a typical interface, and (4) the system is easy to use. In marketing and management literatures, trust is strongly associated with attitudes toward products, services and purchasing behaviors (Gefen, Karahanna & Straub, 2003).

Chang, Dillion and Hussain (2006) argued that trust and trust technology have come into the picture of the virtual environment recently to give an online user the sensation for providing opinion and assessments before a decision is made. They also indicated that the dynamic, open and convenient Web environment, while boosting business potentials and the economy, have created concerns with security, trust, privacy and risks. If these issues are not dealt with in a timely fashion, they could hamper the use of Webs. Trust has been found to be a determinant of perceived usefulness, especially in an online environment, because part of the guarantee that consumers will obtain on the usefulness of a web interface depends on the people behind the web site (Gefen, 1997).

Based on the pervious studies, in order to generate a new insight on online banking adoption among the customers of Taiwan's domestic banks, the present study proposes the framework (Figure 1) with the following hypotheses.

- H1: Perceived ease of use will be positively related to perceived usefulness.
- H2: Relative advantages will be positively related to perceived usefulness.
- H3: Website quality will be positively related to perceived usefulness.
- H4: Knowledge and support will be positively related to perceived usefulness.
- H5: Information quality will be positively related to perceived usefulness.
- H6: Trust will be positively related to perceived usefulness.

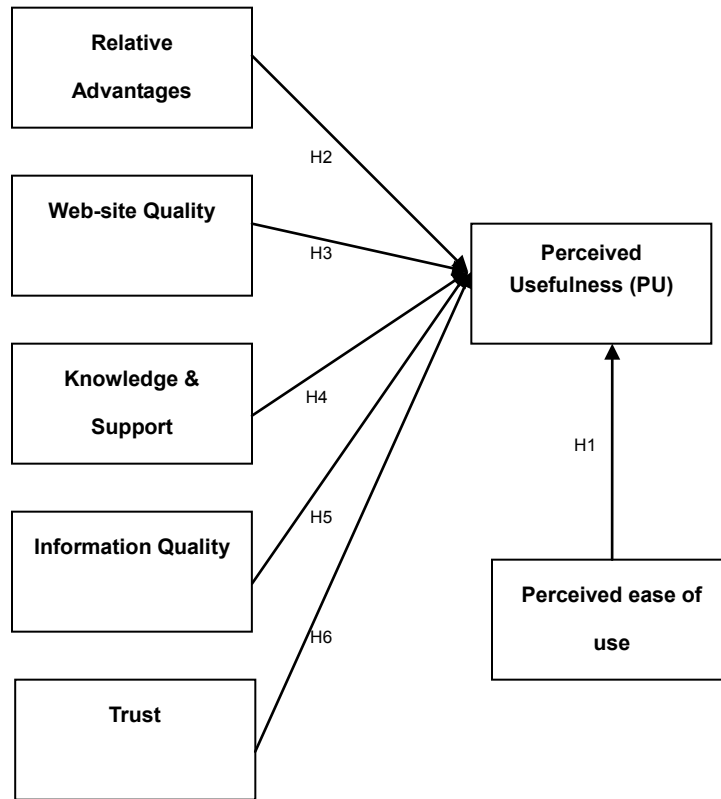
METHODOLOGY

Sample

A sample of 310 people was randomly chosen from those who were visiting the branches among Taiwan's 31 domestic banks. Those branches are separately located in the metropolitan cities-Taipei, Taichung and Kaohsiung. Ten well-trained students were collecting the data during the banking hours from October to December of 2008. To ensure the participants were customers of domestic banks, all respondents had to answer the questions, "Do you have a bank account?" and "Which bank do you have an account with?" Therefore, only those who had at least one Taiwan domestic bank account were included the sample of this study. These people worked in organizations in various industries. For response efficiency, the questionnaire was administered face-to-face, and, to ensure randomness and preclude bias, every third bank customer who visited a domestic bank in Taiwan for a transaction was selected. Poon (2008), employing a similar procedure with the banks from different states in Peninsular Malaysia, found privacy

and security to be major sources of dissatisfaction, which had adversely influenced the adoption of e-banking services.

Figure 1: Conceptual Framework



This figure shows the conceptual framework of this study with 5 variables.

In the present study, because the questionnaire was administered face-to-face, the response rate was satisfactorily high: of the 310 surveys distributed, 217 were returned, with a 70% response rate. Of the returned questionnaires, however, 23 were invalid, bringing the number of respondents to 194. Sample demographics are displayed in Table 1.

Measures

A quantitative analysis using survey was conduct in order to test the relationship between relative advantage, website quality, knowledge & support, information quality, trust and perceived usefulness of online banking. In the questionnaire all concepts were measured on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The questionnaire, developed in English, was translated into Chinese by a qualified English-Chinese translator. To ensure consistency, the questionnaire was subsequently translated back to Chinese by another translator. The result shows that there was no significant different between original English and translated English. The questionnaire, divided into two sections, consisted of 46 questions adapted from different sources. The items selected for the constructs were mainly adapted from prior studies to ensure content validity (Wang et al., 2003). Each section serves a distinctive purpose.

Table 1: Profile of Respondents

Demographics	Items	Number of Respondents	Percentage
Gender	Male	87	44.8
	Female	107	55.2
Age	Under 20	8	4.1
	21~30	74	38.1
	31~40	71	36.6
	41~50	27	13.9
	51~60	8	4.1
	Above 60	6	3.1
	Educational Level	High school & under	39
College & University		108	55.7
Master's & Above		47	24.2

This table shows the profile of respondents. The ratio of the male and female respondents is 44.8%, versus 55.2%. The numbers of the 21~30 year-old respondents and the 31~40-year-olds are about equal. These two groups constitute a majority of the respondents. In terms of educational level, most respondents (55.7%) were college and university graduated, followed by Master's and above (24.2%) and high school and under (20.1%).

Section 1: This section attempts to measure the agreement among respondents regarding their perspectives in adopting online banking. Relative advantages (RA), with five items, was adapted from Poon (2008), and Alsajjanan and Dennis (2006). Website quality (WQ), with ten items, was adapted from Floh and Treiblmaier (2006) and Loiacono (2000). Knowledge and support (KS), with eight items, was adapted from Poon (2008) and Ahn et al. (2004). Information quality (IQ), with seven items, was adapted from Ahn et al. (2004) and Liao and Wang (2007). Trust (T), with eight items, was adapted from Swaid and Wigand (2007), Pikkariainen et al. (2004) and Poon (2008). Perceived usefulness (PU), with four items, was adapted from Davis (1989) and Liao and Wang (2007). Perceived ease of use (PEOU), with three items, was adapted from Davis (1989) and Venkatesh and Davis(2000).

A pre-test was conducted as part of instrument refinement to establish reliability and validity of the data-collecting scales. A sample of fifty people, working in organizations in various industries, was randomly chosen from the Kaohsiung city. All participants were bank customers. Because some respondents in this pilot test requested clarification of Questions RA1, WQ5, WQ10, and KS5, subsequent modifications were made to improve the accuracy of the questionnaire.

RESULTS AND DISCUSSION

The results of multiple regression analysis and the model summary, presented in Table 1, indicate that the overall model of the six Independent Variables is significantly related to customer satisfaction [Adjusted $R^2 = .62$, $F(6, 167) = 44.59$, $p < .05$]. These results, therefore, support the hypothesis that the six dimensions are significantly correlated with perceived usefulness of online banking. In addition, the statistical results also show that relative advantages, trust and perceived ease of use are particularly significantly and positively related to customers' perceived usefulness. These statistical results led to the development of a multiple regression function using beta weight, as shown in Table 4.

Table 2: Regression Results

	Unstandardized Coefficients		Standardize Coefficients	t	Sig.
	β	Std.Error	β		
(Constant)	.66	.37		1.78	.08
RA	.23	.06	.21	3.54	.00**
WQ	.00	.09	.00	.02	.97
KS	-.04	.09	-.03	-.45	.65
IQ	.10	.09	.08	1.07	.29
T	.22	.07	.22	3.06	.00**
PEOU	.43	.07	.46	6.57	.00***

*This table shows the regression results. P=significance: *P < .05, **P < .01, ***P < .001. RA, T, PEOR are statistically significant, indicating that these variables have a positive effect on perceived usefulness. The general model for the present study is deployed as follows: Y (Perceived usefulness) = 0.212 X (Relative advantage) + 0.001 (Website quality) - 0.031 X (Knowledge & support) + 0.078 X (Information quality) + 0.215 X (Trust) + 0.459 (Perceived ease of use).*

CONCLUSION AND RECOMMEDATIONS

The results of the regression analysis conducted on the six factors indicate that relative advantages, trust and perceived ease of use were the most influential factors explaining perceived usefulness of online banking services. This finding suggests that consumers use online banking for the benefits it provides in comparison to other banking delivery channels. Perceived ease of use (PEOU) was almost statistically significant in the model, a finding in line with other TAM studies (e.g., Davis, 1989; Cheng et al., 2006; Al-Somali et al., 2009), which found that PEOU has an impact on PU. This association is explained with the fact that as users are convinced with perceived ease of use, its impact becomes instrumental. In other words, PEOU impinges on acceptance through PU.

A second influential factor in the present study indicates that as consumers perceive the relative advantages of online banking, they will become more informed about the benefits it offers. Trust was also found to exert a positive effect on perceived usefulness of the online banking system. Results from previous studies echoed this finding. For example, Gefen (1997) found trust to be one of the determinants of perceived usefulness, especially in an online environment, because part of the usefulness guarantee that consumers obtain from the web interface depends on their confidence with people behind the web site.

As society moves into the era of new technologies and as e-services become more widely accepted, it will be important that banks meet the needs of consumers. In order to cultivate consumer internet-banking demands, banks must make key improvements that address consumer concerns.

CONTRIBUTION AND LIMITATIONS

The present study is one of the first academic studies to incorporate RA, WQ, KS, IQ and T into TAM. What makes it stand out is its focus on the viewpoints of all bank customers, whether they were users or non-users of online banking. The results of this study provide managers with information pertaining to the planning of online banking Web sites and service selection. In designing online banking services, software developers should pay close attention to informative content that will be, above all, perceived by customers as useful and relevant.

Although for most part the results are considered statistically significant, the present study has several limitations that affect the reliability and validity of the findings. First of all, the regression model developed had relatively low coefficients. Second, a convenience sampling method, adopted in this study to selectively gauge a mass of viewpoints of bank customers, weakens the study’s generalization. Finally, the measures perhaps are not sufficient to explain why bank customers decided to use or not to use the system. New measures will need to be included in future research that ascertains these connections.

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A COMPARATIVE ANALYSIS OF SOCIAL SERVICES AND SOCIAL SECURITY PROGRAMS IN THE INTERNATIONAL ARENA

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Raymond Rigoli, Ramapo College of New Jersey

ABSTRACT

Providing social services to meet the needs of society is at the foundation of the United States political system. Social Security and related social services, created to protect the integrity of our political system, has been a moral triumph. But an important question remains: "Are we adequately meeting the needs of our at-risk population when compared to the international community?" The research in this paper will be based on both primary and secondary research. The research results will be analyzed and presented as viable alternatives and recommendations for improving the current crisis in the United States social welfare programs.

JEL: M41

KEYWORDS: Social security, social welfare programs, political system

INTRODUCTION

Some critics have likened the current Social Security system to a modern day version of a "Ponzi Scheme as the United States effectively confiscate monies from the younger generation to pay for the aging of America (Chapman, 2009). Can a society based upon a capitalistic economic system effectively administer programs tantamount to a "Welfare State" (Tevault, 2008)? The effective administration of social programs aimed at providing social risk services to the disadvantaged and elderly members of the United States society is at the core of the issue. Are there more effective programs currently in existence in the international arena that could become the template for the United States to improve their current social programs?

By the late 1800's Europe recognized the need to develop social programs to ensure the stability of their economic systems. Germany, in 1889, created the first Social Security Retirement Program to promote the concept of "safety nets" for their aging population (Lockhart III, 2004). The United States entered the Social Security arena after an economic failure, triggered by the Stock Market Crash of 1929, sent the capitalistic driven economy into a "Great Depression." From 1929 through 1934 the need for Government sponsored social programs became apparent as untold members of the United States populace fell into financial disrepair.

President Roosevelt responded with the Social Security Act of 1935 which created monthly benefits to individuals attaining the age of 65 and no longer working (Kollmann, 2001). The act also provided benefits to the unemployed, aid to dependent children and for medical services. The act was amended throughout the years, but the first recognition of a major crisis in the system became apparent in the late 1970's (Kollmann, 2001). Currently referred to as "FDR's folly", the need to restructure and improve the Social Security system continues today as we search for an acceptable solution which will allow us to provide a social net for the elderly and the disadvantaged without causing an economic crisis (Tevault, 2008).

Congress has repeatedly attempted to “save” social security, but currently the system is on “life support.” It is critical that Congress reconfigure the current social policies in effect to protect the long-term viability of both the program and the economy. The United States must continue to provide safety nets to members of their society in need without harming the integrity of the capitalistic economic system. In the present recession prone economy, viable alternatives to the existing social security system must be investigated and ultimately implemented. The debate that a more effective and efficient social program exists in the international community must be investigated and critiqued.

The remainder of the paper is organized as follows. Section 2 briefly discusses the relevant literature review pertaining to the subject. Problems within the current social security system are discussed in section 3. Section 4 highlights the solutions and section 5 the international arena. Section 6 presents an international comparative analysis of social security programs throughout Europe. Section 7 illustrates the current lessons to be learned by the United States, section 8 outlines some possible outcomes and section 9 the conclusion of the research analysis.

LITERATURE REVIEW AND BACKGROUND

The overwhelming consensus of the current economic literature portrays the United States Social Security program as an out-of-date intergenerational transfer of wealth welfare system. One researcher, D. Trevault, likens Social Security to the “ultimate of Ponzi schemes.” Clearly illustrated in the literature is the concept that Social Security is funded by the Federal Insurance Contribution Act, and includes many outdated initiatives and policies.

Economic theory suggests the program was established to provide monthly benefits to retirees but many noted researchers recognize the inadequate and insufficient premise that was the base upon which this process was created (King, 2006). These policies, according to many noted economists, were initiated during a time of economic depression and are cumbersome and ineffective in the current economic environment.

Funding of social security programs and initiatives is a world-wide problem and leading economic researchers have noted the unintended consequences on sociological behaviors as a result of these on-going economic issues. Many noted researchers, including J. Powell, concluded that Social Security actually did more harm than good and in many ways prolonged rather than solved the depression of 1929.

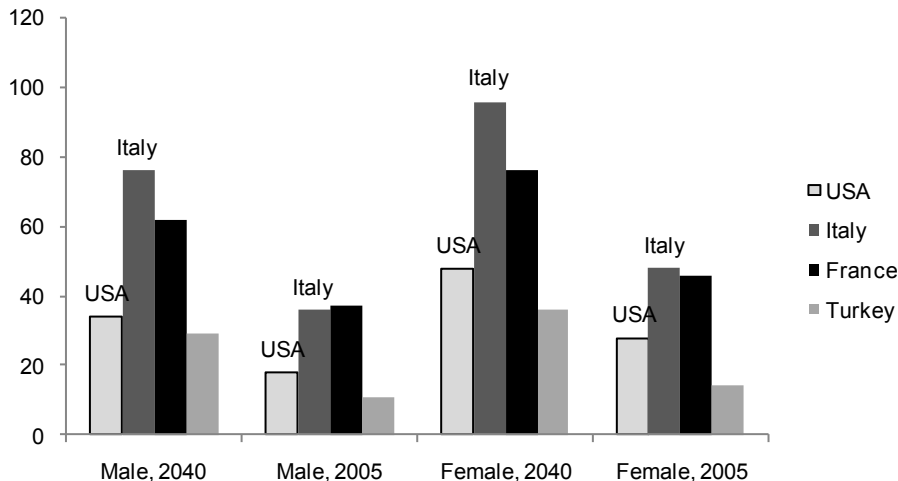
Problems with the Current Social Security Act

The primary problem with the current program is that retirees are living much longer today than when the program was initiated, 67 in 1935 has increased to 77 in 2009 according to the U.S. Census Bureau, and that fewer people are working in relation to the recipients receiving the funds (Population Reference Bureau). In 1935, there was a 16:1 worker to recipient ratio, which has narrowed to the current 3.3:1 ratio (King, 2006). To further complicate the issue, after the mandated increases enacted in 1983, SSA generated a surplus of funds which were quickly diverted to other uses, primarily to off-set the federal deficit (Social Security Reform Center). Monies initially collected to provide for the deluge of baby boomers facing retirement evaporated into the vortex of an Uncle Sam IOU liability. Figure 1 shows the United States Census Bureau estimated ratio of retirement age workers to workers for 2040 compared to 2005.

The chart clearly depicts the wide discrepancy of retirees compared to eligible working aged employees. In 2005 Italy has a 36 % ratio of retirement aged males to the working aged population, which more than doubles to 76% by 2040. For women in Italy the discrepancy increases from a 48% ratio in 2005 to an

estimated 96% by the year 2040. It is apparent that the rise in the number of retirees compared to the number of workers supporting the financial burden is an international problem.

Figure 1: Ratio of Retirement Age Workers (2005-2040)



This figure depicts the wide discrepancy of retirees compared to eligible working aged employees. In 2005 Italy has a 36 % ratio of retirement aged males to the working aged population, which more than doubles to 76% by 2040. For women in Italy the discrepancy increases from a 48% ratio in 2005 to an estimated 96% by the year 2040.

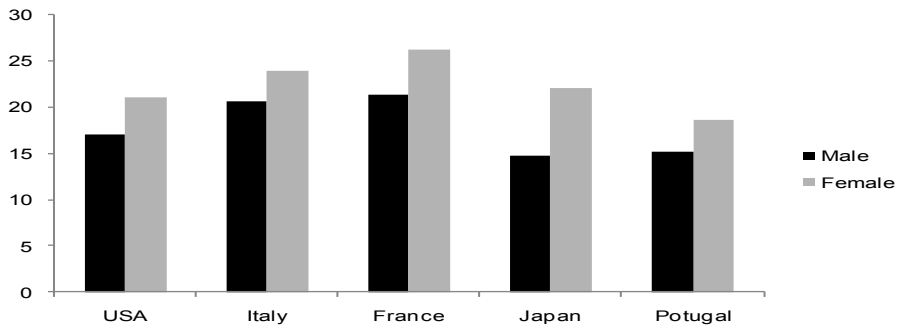
A projected financial shortfall exists and recent calculations by the Social Security Administration indicates that the ability of the fund to make payments to retirees after 2016 is questionable. The census bureau suggests that as people continue to live longer and longer, by 2050, the average life expectancy is expected to reach 83 and the shortfall will expand (Population Reference Bureau, 2009). Adding to the crisis is the realization that from 2004 until 2030, the projected fund distributions are expected to increase from 7% to 13%, primarily due to the demands generated by the Medicare program (U.S. Census Bureau).

The United States Census bureau developed the following information in 2004 pertaining to “Years of Life Expectancy after Retirement” (An Aging World, 2008) (see Figure 2). Figure 2 clearly illustrates that in France both males and females live the longest, 21.4 years for men and 26.2 for women, subsequent to retirement compared to the Japanese males who live the least, 14.8 years following retirement. The number of years retirees live following retirement age has become an increasingly problematic situation for all countries dealing with Social Security funding issues.

Another major deficiency in the current Social Security system is that the poor and middle class workers assume a larger contribution percentage of the regressive tax structure due to the upper limit income shield benefitting the wealthiest taxpayers (Bloom, 2007). The higher the income you earn, the lower the percentage of tax you pay, which is viewed as discriminatory and favoring the rich (Ebeling, 1993).

Additional problems with the current system involve eligibility of survivor benefits due to a change in marital status. Widows, married less than 9 months, are not entitled to receive survivor benefits along with divorcees married less than 10 years. Co-habiting same-sex couples are not entitled to survivor benefits, unless the state in which they reside recognizes same-sex marriages (An Aging World, 2008).

Figure 2: Years of Life Expectancy after Retirement: An Aging World, 2008



Source: The United States Census Bureau “Years of Life Expectancy after Retirement” (*An Aging World, 2008*), 2004. Figure 2 clearly illustrates that in France both males and females live the longest, 21.4 years for men and 26.2 for women, subsequent to retirement compared to the Japanese males who live the least, 14.8 years following retirement.

Confusion abounds as to whether the current program should be defined as a tax, an insurance policy or a re-distribution of wealth program (King and Cecil, 2006). If social security is viewed as a tax, usually the payment of a tax, does not guarantee a refund. If Social Security is viewed as an insurance policy, than only those who in essence “paid” their premiums should be entitled to distributions. If the United States views Social Security as a re-distribution of wealth program, than a needs assessment must be implemented to determine eligibility for benefits.

Critics of the current program state that the intergenerational forcible transfer of wealth increases dependence on the government as is unsustainable in the future (Tevault, 2008). Many believe the program is a welfare program disguised as a retirement program caused by the inefficiencies of the government (Tevault, 2008). The social safety net established during the Great Depression has become an unmanageable dinosaur depleting our resources and undermining private retirement savings goals.

SOLUTIONS TO FIX THE SOCIAL SECURITY SYSTEM

The current economic crisis has forced middle class America to question the underpinnings of a capitalistic monetary system. The United States’ economy is committed to the premise of capitalism being superior to socialism. Contrary to that premise are the current social security programs which are essentially socialistic policies. A capitalistic solution previously suggested during the previous Bush Administration recommended the privatization of a portion of the funds. This policy, which is still under consideration, was not enacted due to the instability of the stock market and the lack of support by congress. Other solutions presented for possible consideration are:

1. Raise the payroll tax cap for Social Security contributions
 - a. Currently proposed by the Obama administration
2. Reduce benefits to the wealthiest participants
3. Raise the tax rate
4. Raise the retirement rate
5. Raise the tax on social security benefits paid out to recipients

All of the above mentioned potential solutions could provide additional funds to bolster the coffers of the federal program, but a capitalistic society cannot focus on solutions without mentioning potential negative consequences (Jones, 2003). The United States cannot afford to impose additional socialistic restraints on an already overburdened US economy. Any increase in taxes or reduction in payments during an economic recession is viewed as harmful to the recovery by many leading economists. Assuming that

premise to be true, the only viable solution to the current problem would be an increase in retirement age for benefit eligibility during the current economic slowdown.

Prior to the current world wide economic crisis, social security programs in the international arena were selected as potential templates for improving the United States program. Venezuela was initially hailed as a successful social program for the United States to emulate (Amersterdam, 2009). But recent information pertaining to the current situation in Venezuela portrays a far different story. The once highly regarded social programs have been replaced with poorly managed and corrupt systems (Amersterdam, 2009). The free healthcare program created to serve the poor in Venezuela has encountered crippling problems resulting in the closure or insufficient staffing of approximately 70% of the facilities (Amersterdam, 2009).

Canada has a similar social security program to ours, and they recognized the need to address the challenges of an aging population and shrinking workforce. In 1997, the Canadian system was reformed and it resulted in a higher tax base, a higher tax rate and a decrease in benefits paid and increased eligibility requirements (Information Library).

Social Services and Social Security in the International Arena

There are many viable social security programs in place in the international community for the United States to use as a template for reform (Lockhart III, 2004). According to the Venezuelan Department of Social Security Statistics, an Old Age, Disability and Survivors program was enacted in 1940. The average contribution is 1.93% of earnings for each employee while the employer is responsible for 4.82% of payroll contributions. Men are eligible for retirement at age 60, assuming they have 750 weeks of contributions and women starting at age 55 with the same contribution limitation. At retirement, the retiree is eligible to receive 30% of the average earnings for the last 5 years or the average of the best 5 years in the last 10 years, whichever is greater. A worker is entitled to supplemental benefits of 1% of earnings for each 50 week period which exceed the 750 week minimum requirement. Venezuela provides medical benefits through government operated clinics and hospitals.

The population in Venezuela is 26.7 million with 5.0% of the population over 65 and 57% of the eligible members are dependent upon the social security benefits (The Americas, 2005). Venezuela has a GDP of \$6,632 per capita. The average life span is 70.9 years for men and 76.8 years for women.

In Canada, social security encompasses a wide range of programs including health, education, unemployment, old age, disability and survivor benefits (Wiseman and Yeas, 2008). According to the Canadian Bureau of Statistics, the Canadian Public Pension System is designed to ensure a basic level of income to all eligible retirees. There are three separate programs in place consisting of the Canada Pension Plan, the Old Age Security and the Guaranteed Income Supplement program (Wiseman and Yeas, 2008). The pension plan component is mandatory earnings based program designed to provide income to retirees, their survivors and the disabled.

The second piece of the program is paid to essentially all Canadians who have attained the age of 65 or older. The final segment of the program is a non-taxable distribution available to low and moderate income retirees, which constitutes approximately one-third of the eligible population. Both the Old Age Security program and the Guaranteed Income Distribution are paid for by general revenues. The Canadian program is funded by both the employer and employee making contributions of 4.95% on annual earnings not to exceed C\$42,100 (Wiseman and Yeas, 2008).

Canada has a total population of 32.2 million with 13.1% of the population aged 65 years or older. Canadians have a life expectancy of 78.3 years for men and 82.9 years for women. The Canadian GDP is \$33,375 per capita.

The Social security program in Brazil according to the United States Department of Social Security requires an 8% employee contribution and a 20% employer contribution. Brazil's population is 186.8 million people with only 6.1% of the people over the age of 65 (Resource Library). The life expectancy of people living in Brazil is 68.8 years for men and 76.1 years for women (U.S. Department of Labor Statistics). There is a dependency ratio of 51.5% for eligible recipients aged 15-64 years of age. The GDP is \$8,402. Per capita (Americas Guide). Contrast with the United States which has a population of 299.8 million people and 12.3% of the population is 65 years of age or older. The United States has a life expectancy of 75.6 years of age for men and 80.8 years for women. The per capital GDP amount is \$41,890.00 with a mandatory contribution rate of 6.2% for both employees and employers.

International Comparative Social Program Issues

Recently, the United States Social Security Administration released a 335 page report on the comparative Social Security programs throughout Europe. The report provides an in-depth analysis of the 44 countries in Europe providing old age, disability, survivors, sickness and maternity benefits to their residents. The information provides a starting point to assess the United States social welfare system compared to the socialized welfare programs existing throughout Europe.

The differences in the international programs are rampant and undermine the value for comparative analysis purposes. One country, Belarus, reported a contribution rate of only 1% for the insured compared to 37.45% paid in the Netherlands. The employers contributions for the social programs varied in a similar manner with Croatia reporting 0% paid compared to a 35.14% cost in France. There are extremes in all areas of the data ranging from significant differences in total population, life expectancy, percent of aged population and GDP per capita. A complete analysis of the specific programs, benefits available and contribution process of the corresponding countries needs be explored more completely so that lessons learned can be fully comprehended.

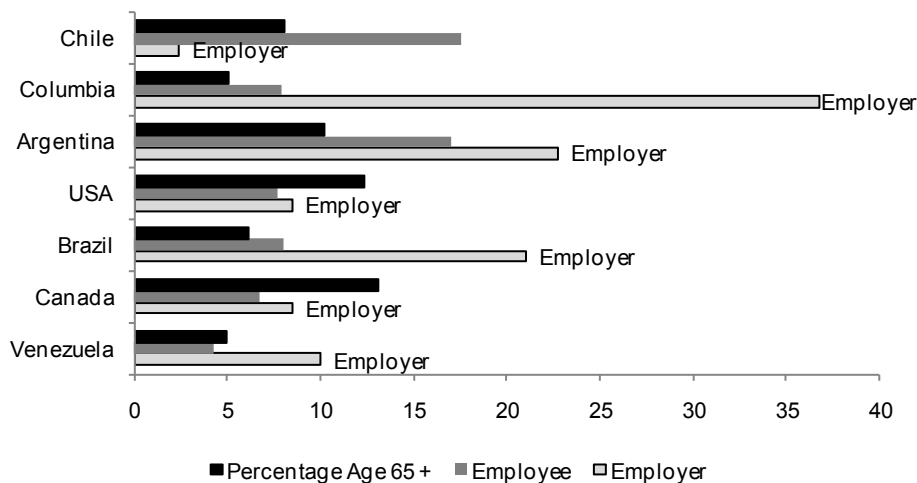
According to the United States Department of Social Security, the amount paid by the employer and the employee varies by country. There is a wide array of contribution rates for both corporations and individuals for Social Security payments (Figure 3). Columbia and Argentina have the highest contribution rates for employers totaling 36.773% and 22.7% while Chile has the highest contribution rates for individuals in the amount of 17.6%.

As Figure 3 clearly illustrates, there is a wide array of contribution rates for both corporations and individuals for Social Security payments. Columbia and Argentina have the highest contribution rates for employers totaling 36.773% and 22.7% while Chile has the highest contribution rates for individuals in the amount of 17.6%.

The need to determine which international social welfare programs are adequately meeting the needs of the at-risk population is critical. Some programs, according to the United States Social Security Administration may appear viable in theory, but in practice may fail. In Greece, for example, a proposed change to their deficit-plagued pension system was met with extreme resistance by the populace resulting in massive strikes causing the economy to grind to a halt (Los Angeles Times, 2009). The British welfare system has recently been exposed as a contradiction in policy vs. practice. The underpinning of the system is centered on the philosophy of providing "free" medical care for everyone. In reality, that system is inconsistent and unreliable resulting in the wealthy "buying" services when needed but unavailable in the free arena. Iceland, hailed as the "best" country to live in 2007 by the United Nations,

has essentially declared bankruptcy in 2009 (Los Angeles Times, 2009). The ramifications of providing universal pension and healthcare payments to all persons residing in Iceland, coupled with extensive maternity, paternity, work injury and unemployment benefits has bankrupted the country (United Nations Best Place to Live Survey, 2009).

Figure 3: Sampling of Amounts Paid by Employers and Employees



Columbia and Argentina have the highest contribution rates for employers totaling 36.773% and 22.7% while Chile has the highest contribution rates for individuals in the amount of 17.6%.

An in-depth comparative analysis is needed to examine all the pertinent parameters of the Social Security program currently in place and contrast the system with comparable international social service programs to determine adoptability. Only countries with analogous economic and political systems will be selected for inclusion to provided useful recommendations for future implementation. The need to differentiate between viable economics and voodoo economics must be completely investigated to ensure a viable solution.

LESSONS LEARNED: WHY SOCIAL SERVICES FAIL?

Attempting to provide a safety net to society’s underprivileged has been a goal since the New Deal was initiated and ushered in a new era appropriately named the “Great Society (Diamond and Orszag, 2005).” Many of the programs attempted to resolve long standing problems encountered by the disadvantaged members of society. They were meant to be temporary solutions, but unfortunately, the war against poverty failed and the needs remained.

The belief that social welfare programs trap the underprivileged participants by undermining their ability to escape from the safety net has been debated for many years (Hiltzik, 2009). The massive problems encountered by the most vulnerable-the elderly – have been neglected in the popular debate. The current Social Security program is dying and we need to provide life support before it is too late. Too many of the at-risk members of society, most of whom provided immeasurably to society during their lifetimes, will be irrevocably damaged if social security fails.

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 integrated the concept of personal responsibility into the landscape of the safety net debate. An aggressive overhaul of the current system mandates the privatization of many of the programs designed to help those in need. The current

philosophy on Capitol Hill is to shift responsibility from the public arena to the private, both in terms of responsibility and financial management. But in a recession laden economy the solutions are limited.

A crisis is looming and a viable alternative to the current system is imperative. One proposal meeting with significant political resistance is the plan for privatization for the individual workers accounts. This system is currently in place throughout the world, but with mixed results. In Chile, for example, the privatization process requires contributions by the employees and not the employers. The instability in the financial markets resulted in a roller coaster range of returns that ultimately created an estimated 40% of the participants in Chile being underfunded. The working poor and women were most severely impacted by the shortages as well as the self-employed who were not mandated to participate.

The American dream is being eroded by deficits in the funding of Social Security, Medicare and Medicaid programs further complicated by rising costs. Needy members of society seek a mix of public and privately based funding sources to support their basic needs. The role government should play in providing assistance in a capitalistic economy is confusing at best. The need for a safety net is apparent but the failures in the current system are undermining the confidence of the contributors and recipients.

The United States needs to solve these overwhelming problems with social security and needs based social programs to provide the quality of life mandated by a free market economic driven society. It is imperative that the United States examine the practices of successful domestic and international social service programs and the resulting impact on their economies. The United States operates a dynamic economy and the social security policies must be flexible to meet the needs of the recipients as the political and financial parameters evolve.

So What Should The United States Do?

The United States must assess the needs of their retirement aged population and the resources available to meet those needs. Current research has determined that the inadequacies of the current Social Security system must be resolved within the framework of limited economic funding (Hiltzik, 2009). The options available to resolve this growing problem range from increasing the retirement age to increasing the tax on individuals. The retirement age population has consistently resisted any change to the current policies in place for fear their payment stream will be negatively impacted. The United States must determine a viable solution to provide for both the needs of the working population and the retirees (Salisbury, 2009).

An equitable solution would consist of raising the minimum retirement aged based on projected life expectancy increases, raise the cap on the maximum wages subject to Social Security withholdings and provide an incentive to the over 65 aged population to continue working through tax incentives. The gap between the numbers of retirees to working contributors will be eradicated by these solutions. The concept of a retirement fund is to provide benefits for a limited time period for those in need without overburdening the younger population. The increase in funds generated by raising the cap on taxable wages will provide much needed resources and ensure the future viability of the program.

CONCLUSION

Social Security was established during a time of economic crisis to provide a sense of security to the aging populace. The goals of the program are as relevant in 2009 as they were in the 1930's. The current economic crisis has created panic among the aging baby boomers. The fear of growing old and having less security is an overwhelming feeling reverberating throughout the world. Government policies supporting the needs of older members of society need to be effectively implemented without undermining capitalism. Policies cannot be enacted that will provide disincentives to hard work and success in order to "save Social Security." The United States economy is successful because of strict

adherence to the policies of capitalism sprinkled with limited social programs. The international arena is facing a myriad of financial problems caused in part by unrealistic social programs. The need to learn from others mistakes is necessary to prevent the implementation as a problematic solution to the besieged United States Social Security program.

Any solution to a wide ranging societal problem must be viewed as equitable to ensure its' successful implementation. A viable resolution is available if the United States government, together with the capitalistic driven economy, weaves a plan that will benefit both the current retirees and the younger generation. The needs of the two groups are diametrically opposed and therefore the solution must be acceptable to both groups.

Current research suggests there are many problems with the current system but acceptable solutions are available. The goal of the initial program remains the same today; to provide assistance to the at-risk members of society in need. The goal of the paper was to identify the problems with the United States Social Security program and to provide viable solutions to resolve these issues. Future research is needed to assess suggested resolutions to the age gap and underfunding issues documented in the paper and the ultimate consequences of these decisions.

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DID FASB 157 CAUSE THE FINANCIAL CRISIS?

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ABSTRACT

In light of the financial meltdown that followed the bankruptcy of Lehman Brothers in the fall of 2008, there is considerable debate in the financial community on the appropriate accounting methodology used to value financial assets. In fact, many analysts on Wall Street argue that much of the blame for the current financial and economic crisis is due to fair value accounting and the implementation of FASB 157, which regulators put into effect for financial statements released after November 15, 2007. The argument is that with assets trading in illiquid markets, financial institutions reported outsized losses by writing down the value of their security and loan holdings even if they had the intent and ability to hold the assets to maturity. The critics of FASB 157 charge that these sharp write-downs contributed to the failure of banks and forced others firms into a difficult financial situation. This study examines the issues surrounding fair value accounting and looks at the role accounting played in the financial crisis. We conclude that fair value accounting played no significant role and is the preferred accounting framework for financial institutions.

JEL: G01, G10, G21, M41

KEYWORDS: Fair-value accounting, FASB 157, mark to-market, level 1, 2 and 3 assets

INTRODUCTION

The financial crisis that occurred in the US in 2007-2008 had its roots in the collapse of the residential real estate market. The result of this collapse was a sharp decline in housing prices that adversely affected the value of mortgage-related financial products held on the balance sheet of many financial institutions. Financial Accounting Standard 157, which the Securities and Exchange Commission (SEC) put into effect for financial statements released after November 15, 2007, required commercial and investment banks and some insurance companies to mark-to-market their assets, particularly the mortgage backed securities. As a result, financial institutions recognized large losses in 2007 and 2008 due to marking-down the value of the mortgage backed securities (MBS) on their balance sheets. In addition, the markdowns reduced the value of bank regulatory capital, forcing banks to raise additional capital and creating uncertainty among investors about the health of the banks.

The main criticism of this accounting standard is that assets classified as “other than temporarily impaired” are marked-to-market, no matter if the security is available-for-sale or being held-to-maturity. FASB 157 requires financial institutions to look at market inputs from sales of similar assets even if there is no active trading market. Thus, with illiquid markets financial institutions may be forced to take outsized losses by writing down the value of the security even if they both have the intent and ability to hold the assets to maturity. The resulting lower sale value may be below the security’s value based on its future cash flows. The critics of FASB 157 charge that these sharp write-downs contributed to the failure of banks and forced others firms into a difficult financial situation. This study examines the role accounting played in the financial crisis and is organized as follows: section 2 provides a literature review of fair value accounting, section 3 discusses asset categories under FASB 157, section 4 discusses the impact on the investment community, and the paper ends with conclusions and suggestions for future research in section 5.

LITERATURE REVIEW

The financial crisis began in February 2007 as shown by Taylor (2008) and Wingall, Atkinson and Lee (2008) and the problems grew dramatically following the demise of Lehman Brothers in September 2008. What preceded the crisis was an explosive growth in mortgage lending and the securitization of mortgage loans. The unprecedented drop in housing prices that began in 2006 resulted in growing defaults on mortgages and made it difficult for financial institutions to determine the true value of the mortgage-related assets held on their balance sheet. The fact that these assets traded in illiquid markets exacerbated the problem. Thus, accounting rules used to determine asset values took on a central stage in the crisis.

With FASB 157 enacted in November 2007, the critics such as McTague (2008) blame its implementation as the root cause of the crisis. They argue that fair value accounting caused financial institutions to take unnecessary losses that resulted in the elimination of the entire investment banking industry as well as the bankruptcy of banks such as Washington Mutual and Wachovia. However, what is fair value accounting?

Given all the controversy, there is a lot of confusion surrounding the role played by fair value accounting in the crisis and how financial institutions use mark-to-market accounting to value their assets. Contrary to views expressed in the media and by the critics, mark-to-market accounting is not new. Financial institutions have used fair value accounting for decades to value financial assets. Prior to FASB 157, there was no single consistent measure of fair value and the guidance for applying these definitions was limited and inconsistent. What is new is that FASB 157 issued new guidelines and additional disclosures on how to measure fair value, especially in the case of illiquid markets.

The accountancy board issued FASB 157 to define fair value, create a framework for measuring it and to expand disclosure requirements about fair value measurements. Under 157, the definition of fair market value retains the exchange price notion in earlier definitions. “This Statement clarifies that the exchange price is the price in an orderly transaction between market participants to sell the asset or transfer the liability in a market in which the reporting entity would transact for the asset or liability, that is, the principal or most advantageous market for the asset or liability. The transaction to sell the asset or transfer the liability is a hypothetical transaction at the measurement date, considered from the perspective of a market participant that holds the asset or owes the liability. Therefore, the definition focuses on the price that would be received to sell the asset or paid to transfer the liability (an exit price), not the price that would be paid to acquire the asset or received to assume the liability (entry price)” (FASB 157 Section 5:15).

It is important to note that under FASB 157, financial institutions do not have to report all of their assets at fair value. In applying FASB 157, a mixed attribute model is used where some assets are valued at fair value and others using historic costs. Financial institutions report held-to-maturity or held-for-investment securities and loans at historic cost, but use fair values to determine impairments for these instruments. In contrast, financial institutions report assets and liabilities held for trading purposes and available-for-sale at fair value.

What really reduced the role played by FASB 157 in the crisis is the fact that the largest items on a commercial bank’s balance sheet are loans held for investment. Banks value these loans at historic cost. Huizinga and Lavean (2009) noted that loan loss allowances and not mark-to-market losses accounted for a majority of the write-downs taken by banks during the financial crisis. Finally, banks have discretion in the determination of fair value in an environment of depressed prices.

Other Aspects of FASB 157

In the international literature, International Financial Reporting Standard (IFRS) defines fair value as the amount for which an asset would be exchanged or a liability settled between knowledgeable, willing parties in an arms length transaction. The major difference between their measures of fair value is that 157 specifically uses exit price in its determination, whereas the IFRS is not explicit on this issue.

FASB 157 makes the distinction between recurring and non-recurring fair value measurements, as well as financial versus non-financial assets. Recurring refers to fair market value measurement on a quarterly basis and includes most of the financial assets as well as derivatives. Non-recurring fair value measurements apply mostly to non-financial securities and are tested for impairment on a yearly basis. If it is determined that the fair value in these assets is less than carrying value, then an impairment loss is recognized by this difference.

Research is inconclusive, but it has been shown that much of this write-down occurs when companies have exaggerated losses so adding more losses has no further effect on stock price—a practice known as “Big Bath Behavior”. As such, one can argue that these losses are arbitrary. The latter set of assets would include property, plant and equipment as well as intangibles.

Under FASB 144, impairment losses for property, plant and equipment involve a two-step process. First, the question is whether we have impairment. If the carrying value of the asset is greater than the undiscounted cash flows from its use and disposal, then we have an impairment loss. The next step is to calculate the amount of the loss, which is the excess of carrying value over fair market value. If fair market value cannot be determined, as is often the case, then the discounted cash flows must be used as a proxy to fair value.

Under FASB 142, companies must test goodwill and other non-amortizable intangible assets for possible impairment at least on an annual basis. If the fair market value of an intangible asset exceeds its carrying value, then an impairment loss is created.

Under FASB 157, company specific information should be factored into fair market value measurements when relevant information is not observable in the market. This is especially true with non-financial assets. Clearly, FASB 157 has differentiated the treatment of fair market measurement between financial and non-financial assets. We will now give you our thoughts as to why we believe this is the case.

Reasons for Differences

We believe that there are four reasons for this difference.

- First, financial assets are clearly much more material in financial statement reporting than non-financial assets. This makes a more conservative definition of fair value much more critical.
- Second, non-financial assets such as land and buildings are recorded at historical cost and subsequently recorded net of accumulated depreciation. Collectively, non-financial assets like fixed assets and intangibles, when totaled, have a fair market value much greater than its book or accounting value. This will not be the case for each individual asset but will apply to the total of these asset groups. A major reason for this is inflationary effects. Simply put, these assets are reported on a conservative basis.
- Third, it is easier to put a fair value number on financial assets than non-financial. The cost-benefit of trying to find an exit price for each non-financial asset is not feasible.
- Fourth and last, users of financial statements often back into the fair market value of non-financial assets by an income approach. An internally developed patent has no accounting value but a market value is derived from a cash flow or income approach. Giving a fair value for these assets then would be counterproductive.

Assets Categories

Under FASB 157, the Board created a hierarchy of fair value methodologies starting with observable prices and moving to unobservable inputs and the use of models. Three categories of assets were created. The classification is dependant as to how and where an asset is traded, as well as to its liquidity.

- Level 1 assets are traded in organized exchanges with observable prices. An example of this would be the stock of IBM. IBM is traded on the NYSE, its price is easily and objectively observed and thus a mark-to-market approach can be used.
- Level 2 assets are those which do not have a quoted price but whose price can be observed either directly or indirectly. This would include assets, which have similar assets traded in an active market, as well as assets traded in a market with low liquidity. A fair market value can be attained for these assets using mark-to-model guidelines, with a high degree of confidence, but not an absolute value as we have for level 1 assets.
- Level 3 assets have unobservable inputs due to their illiquid nature and have traditionally been valued by companies by the use of internal sophisticated models, which require the use of many assumptions. Now, under FASB 157, these assets must be reported at a fair market value along with enhanced disclosure about the processes used to arrive at a fair value.

Problem of Level 3 Assets

With level 3 assets, the intent of the Board was to inform investors that the value of these assets should be treated with some degree of skepticism. It is the less liquid, level 3 assets that are the source of the uncertainty especially in the valuation of complex mortgage and derivative products. Market participants like banks and investment companies developed many of these exotic products and there is no effective market to trade them. Instead, trading of these securities occurs in private or in the over the counter market (OTC). Mortgage backed securities originated by private firms such as Countrywide Financial, Lehman Brothers or Wachovia were a main source of the problem. These MBS were backed by pools of subprime or ALT-A loans, which were subject to high default rates.

Accentuating the problem, these privately packaged mortgage backed securities were further securitized creating illiquid products such as collateralized debt obligations (CDOs) and structured investment vehicles (SIV). The CDOs and SIVs are examples of level 3 assets and when subprime mortgages began to experience problems, the hedge funds and banks that owned these assets reported large losses. These products are the instruments invented and engineered by Wall Street; the public does not understand them due to their unique nature and are often seem like high-grade investments when packaged.

Mark-to-Model versus Mark-to-Nothing

Until the advent of 157, a mark-to-model approach was used to value level 3 assets for financial reporting purposes. Mark-to-model entails valuing an asset on some mathematically based model. The present value of cash flows is often used as a proxy for fair value. Since no market exists for this type of asset, a model-based approach, although imperfect, is a way of obtaining a fair value for an asset. As an example, the value of a unique patent can be modeled by estimating future cash flows over the course of its economic life, and then using an appropriate discount rate to obtain the present value of its cash flows. This in turn is the fair market value under the mark-to-model method.

Critical to this result, is the reality of the assumptions inherent in the model. Poor or unrealistic assumptions will yield questionable results. Good assumptions will yield a good output. FASB 157 requires the use of fair market valuation (based on exit price) for level 3 assets. The result is a mark-to-nothing model. Level 3 assets due to their illiquidity and unique nature have no objective value. They are not traded in any organized market, so consequently, a true market value cannot be observed. However, FASB 157 forces companies to assign a fair market value to these assets. Additionally, models cannot be used to value these level 3 assets under FASB 157, so a mark-to-model method, which theoretically is the best approach for asset valuation in this case, is not allowed.

Consequently, a fair market value somehow has to be assigned to these non-liquid assets, which have no similar assets for comparative value. One then has to realize that the valuation derived is suspect and questionable, and economically may not be viable. Clearly, exit price of illiquid assets can result in a decrease in market value in excess of 30 percent when compared to an entry price. FASB 157 requires disclosure as to how the value is derived, which we believe will result in a conservative presentation, thereby causing exaggerated write-downs and losses to these level 3 assets.

IMPACT ON THE INVESTMENT COMMUNITY

Multiple and serious repercussions were created to the holders of these level 3 assets in terms of their financial reporting. First, the market value based on an exit price was found to be significantly lower than the value derived internally by the use of models. The results were large write down of assets and consequently large losses in company income statements.

Second, level 3 assets turned out to be much more material than anybody expected. As an example in 2007, Morgan Stanley had a ratio of level 3 assets to its Stockholders' Equity in the amount of 250 percent, while Goldman Sack's ratio was 185 percent, Lehman Brothers was 160 percent, Citicorp was 105 percent, JP Chase was 45 percent and Merrill Lynch was 38 percent.

Equally important was that these level 3 assets ended up in the portfolio of pension funds and in global sovereign wealth funds like the country of Iceland. One can argue that since these assets now have to be valued at mark-to-nothing, it may be in the best interest of a company to arbitrarily place a high value on these assets and minimize their losses. However, companies must disclose the inputs used to measure fair market value, which will be closely reviewed by the user of financial statements.

Table 1 Ratio of Level 3 Assets to Shareholder Equity (2007)

Company	Percent
Morgan Stanley	250%
Goldman Sachs	185%
Lehman Brothers	160%
Citicorp	105%
JP Morgan Chase	45%
Merrill Lynch	38%

The above table illustrates the high Percentage of Level 3 Assets to Shareholders' Equity, as reported by SEC 10- filings for selected financial institutions , for the 2007 fiscal period.

Advantages of FASB 157

Proponents of FASB 157 as shown in the Financial Stability Forum Report (2008) state that the fair value pricing of assets brings about transparency and allows the investment community to learn more about the nature of tier 3 assets, and the amount of these assets held on the company's balance sheet. Essentially, it informs investors of the extent of bank exposure to MBS and the real estate market.

The goal of FASB 157 is to present financial statements on a conservative basis. Companies will now have to take losses on a yearly basis and will reconsider investing or creating such tier 3 assets with this in mind. Consequently, one can argue that Wall Street's engineering and greed created the economic meltdown and that the FASB 157 potentially discourages destructive Wall Street action in the future by forcing disclosure and close monitoring on such engineered instruments. Eliminating mark-to-market rules would further reduce investors' trust in the financial statements in all companies at a time when ongoing efforts are need to restore investor confidence. In contrast to the views of its critics, the elimination of fair value accounting would have increased market instability and would have made the financial crisis worse.

CONCLUSIONS

The role that FASB 157 played in the financial crisis is the subject of much debate. Our review of the literature suggests that FASB 157 played only a small role in the crisis. Banks failed not because of fair value accounting but due to a loss of investor confidence and their inability to attract funding and liquidity. No accounting standard is perfect, but FASB 157 is a step in the right direction in that it provides a measure that best reflects a financial institution's current financial condition by providing meaningful and transparent financial information and minimizing the possibility of manipulation.

The SEC (October 2008), mandated by the Emergency Economic Stabilization Act of 2008, conducted a

study and found that the economic meltdown and financial crisis was due to poor internal decisions by banks and other financial institutions. Loose credit policies, poor internal controls and bad business judgment were the basis for the meltdown rather than FASB 157. The SEC (December 2008) study noted that investors have a high degree of confidence in fair value accounting because 90% of the assets that are marked-to-market use inputs that are based on observed data obtained in active and highly liquid markets. FASB 157 was the messenger that just delivered the news and the economic reality to the investment community. Relaxing the rules may encourage banks to hold worthless assets to maturity rather than taking the hit that would result from marking impaired assets to their market value. While it may help, the financial institutions in the short-run by helping them hide their toxic assets, in the long-term it may drive away investors due to their lack of confidence in the accuracy of the financial statements. We conclude that fair value accounting is the preferred accounting framework for financial institutions. An alternative based on historic costs is not appropriate in determining the current value of assets and liabilities held by financial firms.

Our overview of the issues surrounding FASB 157 suggests a number of avenues for future research. First, is the question of whether fair value accounting is pro-cyclical? The argument is that under fair value accounting banks and other financial institutions write-up the value of their assets during an economic upturn increasing the overall leverage of the financial system. This, in turn, makes the system more vulnerable during an economic downturn and accentuates the potential severity of any financial crisis. A test of the relationship between accounting methodology and leverage is ultimately an empirical issue.

Second, it is argued that there is a potential contagion effect associated with fair value accounting. In this case, falling prices caused by write-offs at one institution force other healthy institution to take losses on their assets spreading the problem through the financial markets. Again, this is an empirical issue and the question is which accounting method best insulates banks from fire sale drops in market prices.

Finally, what impact did FASB 157 have on the stock price of financial firms? The traditional approach would be to conduct an event study on a sample of financial firms. The methodology used to address this question was to conduct an event study. Under this approach, one can assess the impact of the accounting change under FASB 157 on the stock price of a sample of financial firms. The abnormal return prior to and after the announcement date is estimated and the statistical significance of any change is assessed.

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INNOVATION PROCESS IN CANADIAN AND US HOTELS

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ABSTRACT

This study explores the innovation (NSD) process in hotels. We review the existing NSD models and investigate if they explain the innovation process in hotels both in Canada and the US. Six new services are identified and examined closely. Based on the results we find distinct differences in the innovation process in hotels from other service industries and propose an activity based innovation process model for hotels. The study also attempts to understand if the development process is an informal or a formal one and reveals that it is as much systematic as it is creative. The study provides a guideline for managers to adopt, in implementing an NSD process.

INTRODUCTION

The innovation and new product development literature is rich with numerous studies spanning the last four decades. However, the attention has always been on the manufacturing sector. Studies of the same in the service sector to date are sparse (Stevens and Dimitriadis, 2005; Alam and Perry, 2002; Edvardsson and Olsson, 1996; de Brentani, 1993). It is now recognized that the service sector is clearly growing at an explosive rate, particularly in comparison to manufacturing (Atuahene-Gima, 1996) and that it accounts for 70% of the GNP and of the employment in most developed countries (Stevens and Dimitriadis 2005).

Furthermore, the value of innovation has been clearly recognized as a vital strategic tool for competitive advantage (Bowers 1989) making a study of the new service development (NSD) process of major importance for both academics and practitioners.

Tourism is considered a core service industry and has become one of the major international trade categories. The export income generated by international tourism ranks fourth; after fuels, chemicals and automotive products. From 1950 to 2007, international tourist arrivals grew from 25 million to 903 million according to the UNWTO 2008 edition of tourism highlights report. The global hotel, restaurants and leisure industry generated total revenues of \$2.3 trillion in 2007 according to the Datamonitor industry market research (2008)

The overall export income generated by these arrivals (international tourism receipts and passengers transport) grew at a similar pace, outgrowing the world economy, exceeding US\$ 1 trillion in 2007, or almost US\$ 3 billion a day. North America accounts for 95.3 million international travelers (UNWTO, 2008). According to the Canadian Tourism Commission's 2007 annual report the total tourism revenue in 2007 reached \$70.2 billion for Canada. Hotels and lodging plays a pivotal part in the tourism industry we find it necessary to study the sector from the innovation perspective. Of the studies to date in service innovation process the emphasis has been mostly on the financial sector. Given the turbulent nature of the industry (Ottenbacher and Gnoth, 2005) the firms in the industry are continuously forced to innovate in all aspects of operation.

This study reviews the existing models that explain the NSD process (NSD Process and Innovation process are used interchangeably in this study) and applies the two models that Alam and Perry (2002)

propose based on case studies of twelve financial institutions to hotels. The case study methodology is used to ascertain the transferability of either model to hotels.

In this study we briefly discuss the existing new service development models followed by the methodology. We then discuss the NSD case study in two independent hotels one in Canada and the other in the United States, leading to the NSD model. In the last section we provide conclusions and managerial implications.

LITERATURE REVIEW AND EXISTING MODELS

Some attempts have been made to develop a NSD model (Bowers, 1989; Scheuing and Johnson, 1989) based on the product development format (Booz et al., 1982) and its subsequent application to the hospitality industry (Jones 1995; 1996).

Bowers proposed a normative model of new service development with eight distinct stages, namely; (1) Develop a Business Strategy, (2) Develop a New Service Strategy, (3) Idea Generation, (4) Concept Development and Evaluation, (5) Business Analysis, (6) Service Development and Evaluation, (7) Market Testing and (8) Commercialization.

The empirical study based on banks, hospitals and insurance companies, concludes that the responding firms in the study tend not to engage in formalized idea generation (stage 3), market testing (stage 7) or product development and testing as outlined by Booz *et al.*, (1982). The study suggests that service organizations employ a process of new service development that is not open to market influences and concludes that the path to developing better new products lies in a systematic process of NSD that is sensitive to external changes and incorporates consumer reaction and criticism.

Table 1: Scheuing and Johnson Model

Formulation	Objectives and Strategy Structure Idea Generation And Screening
Development	Concept development Concept testing Business analysis Project Authorization
Testing	Product or service design testing Process and system design testing Marketing-program and design testing
Evaluation	Personnel training Product or service testing Test-marketing Launch Post Launch review

Scheuing and Johnson's 15 step innovation process for NSD.

Scheuing and Johnson (1989) proposed a 15-step innovation process for NSD (Table 1) and their study of the financial sector revealed NSD was undeveloped and unsystematic (Scheuing and Johnson 1989).

Jones (1995) also observes that the NSD was undeveloped and unsystematic when he tested the model on the flight catering sector. Subsequently he applied the same model to the hospitality industry, studying four cases. He recommends the 15-step process be used as a checklist rather than a script. He also concludes that the innovation process is unsystematic in general and least systematic for smaller firms in the hospitality industry. The choice of firms in the study - although part of the hospitality industry - does not fall into the lodging industry, namely hotels.

The literature presents another model, that is cyclic in nature, (Johnson et al., 2000), represented in Table 2, describing the NSD sequence that identifies four broad stages and 13 tasks that must be conducted to launch a new service as well as the components of the organization, which are involved in the process.

Table2 : NSD Cyclic Model (Johnson *et al.* 2000)

STAGES	TASKS
Design	Formulation of new services objectives/strategy Idea generation
Analysis	Concept development and testing Business analysis Project authorization
Development	Service design and testing Process & system design & testing Marketing program design and testing Personnel training
Full Launch	Service testing and pilot run Test marketing Full-scale launch Post-launch review

Cyclic NSD model that identifies four broad stages and 13 tasks that are to be conducted to launch an new service.

Some academics (Menor *et al.* 2002) observe that the NSD process cycle represents a progression of planning, analysis and execution activities and that the cyclic nature is meant to suggest the highly iterative and non-linear process typically employed in most NSD efforts. In their study of new service development and proposing new research opportunities the authors opine that the NSD process cycle recognizes the fundamental NSD stages revolve around the design and configuration of service concept elements and that resources such as development teams and tools play an enabling function in the development process.

Alam and Perry (2002) in their study argue the need for customer interaction in the NSD process and proceed to develop NSD models for new financial service development that included various stages in the NSD process. Based on twelve case studies in the financial sector the authors suggest two models applicable for small and large firms.

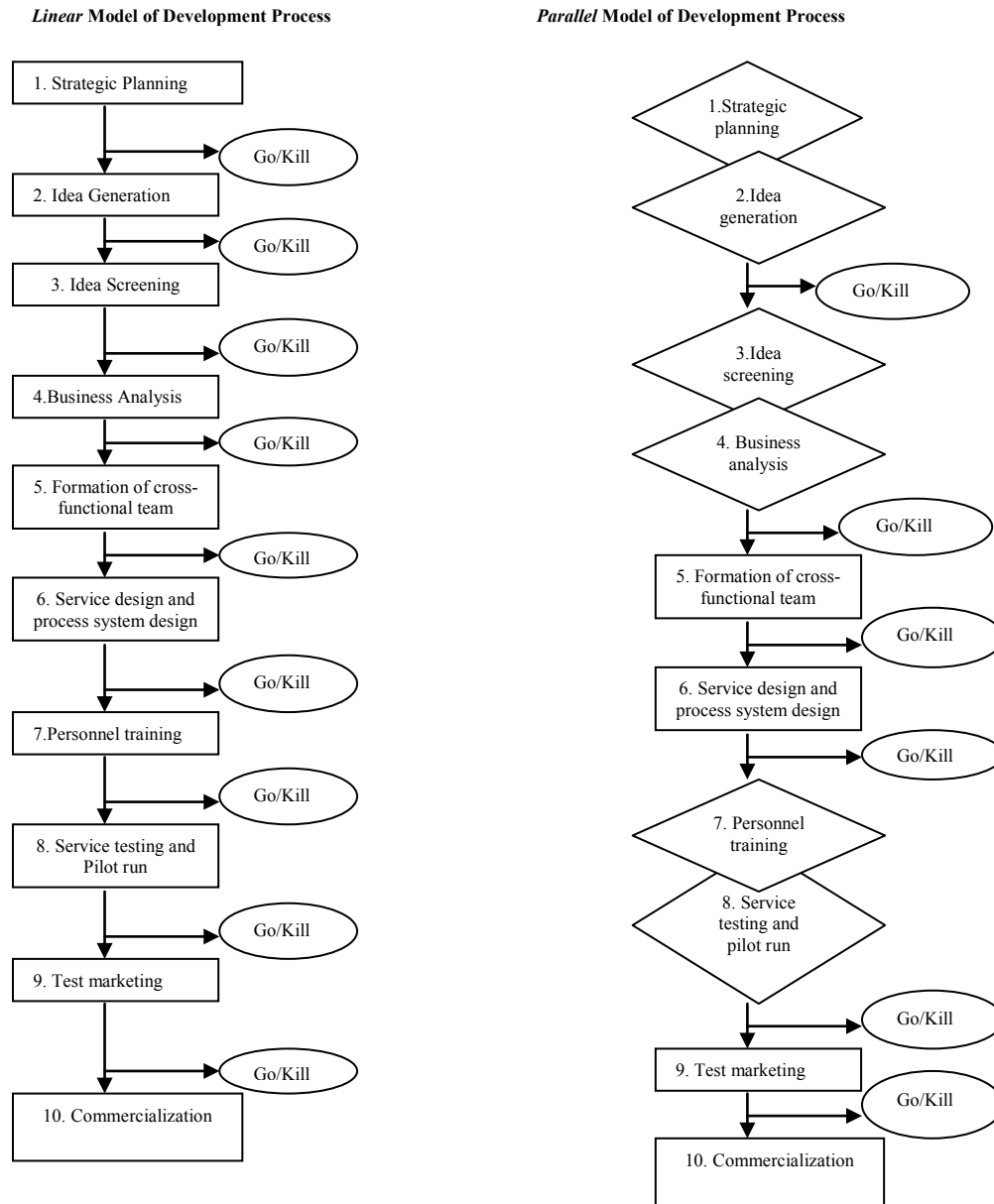
The models (Figure 1) identify ten stages with one being linear and containing some concurrent stages. The authors refer to the two models evident in the literature – both the eight-stage model (Bower, 1989) and the 15-stage model (Scheuing and Johnson, 1989) – and observe that the ten stages they report are found in one form or another in the existing service development studies.

Our search has not revealed the application of any of the aforementioned models in the context of hotels. It appears that there is limited research in new service development process in hotels. The purpose of this study is to explore the NSD process with an objective to identify the activities involved in the development of new service in independent hotels. The study will also ascertain if the innovation process is systematic or creative in nature. We are also motivated to learn if the process amongst different size hotels in Canada and the United States. We adopt the case study approach to understand the process.

DATA AND METHODOLOGY

Given that there is a dearth of material in this field and with no grounded theory to date to which we can refer to; leads us to employ the qualitative technique. Academics (Westgren and Zering 1998) draw on Yin’s (1994) argument that case research and survey methods are better suited than other techniques for analyzing contemporary events. Westgren and Zering (1998) opine that case research is superior to survey methods at answering the “whys” and the “hows” because case analysis can delve more deeply into motivations and actions than structured surveys.

Figure 1: Two Models of New Service



Rectangle box: sequential stages; diamond box: overlapping/ parallel stage
 Source: Alam and Perry (2002) p525

As decision making and initiative is invariably from senior managers we used the “elite” interview method to understand the process. All interviews were recorded and transcribed. For our Canadian hotel we identified an independent resort style hotel with conference and convention facilities that was recognized and rated by the CAA (Canadian Automobile Association) in a major Canadian metropolitan city. The criteria for our selection were also based on, independence of property from any chain affiliation, introduction of new services in the past three years and the willingness of key executives to provide detailed information regarding the NSD process.

The property has an average daily rate (ADR) of C\$99.00, 88 rooms with one restaurant and convention facilities to accommodate 150 guests. The restaurant offers fine dining and Canadian Heritage Cuisine. Our first round of interviews was to identify the new services that were introduced in the past three years. Our primary contact was with the Director Sales and Marketing (DSM). After a detailed discussion with the DSM and the Director Food and Beverage (DFB) we learnt of three new services that were introduced at the Canadian Hotel and Resort. All three services (Table 3) were introduced after the DFB joined the property 3 years earlier. Detailed discussions led to clear identification of the services and an overview of the activities taken during the NSD process.

The second hotel of our study is located in a major city in the US. The property is styled as a hotel and spa with 234 rooms with an ADR of US\$132 (printed rates US \$179- \$189). The hotel has one restaurant and a conference center with a capacity of 250 people and three breakout rooms. The hotel also has a nine-hole golf course. It is independently owned, with a management company operating it. The restaurant offers fine dining with a wide selection of wine. We conducted our interview with the DSM who had first hand information for most of the services. Our initial interview was conducted over the phone and we were able to identify three new services that were introduced in the past three years.

In our second round of interviews we gathered information using a structured questionnaire and open-ended questions. We outlined all possible NSD process steps (fifteen) identified in the literature with detailed explanation of each, as defined by Scheuing and Johnson (1989) in their study and asked key executives to indicate the steps taken for each new service. We chose to employ all the 15 steps to ensure the list was exhaustive. We also sought the sequence of steps taken and comments regarding activities for each step. One key open-ended question we asked was if any of the steps were taken concurrently. Following this, we prepared a schematic representation of the NSD process based on the information received and discussed the steps in our third round of interviews with the key executives. We discussed each step and once the key executives were satisfied of the exact representation of the process we concluded our fieldwork.

With the US hotel we had asked for blueprints, memos, and any other relevant information relating to the development of the new services during our phone interview. The DSM was able to gather all relevant information for all three services. She was prepared with description, facts and figures related to the three services. She had gathered all relevant information from various sources to provide a complete picture of the innovation process. During the interview, she was able to call other members of management involved in the innovation process for clarification. At one point, another member of management joined the interview and provided us with some data. We did not conduct a third round interview with the US hotel as we were able to show a schematic representation of the NSD process, sometime after the interview, based on the information we received.

RESULTS

Table 3 represents the new services that were introduced at the two properties. We have also indicated the time taken from idea to launch as well as the level of success as determined by the managers. We were not able to collect any figures on the costs associated with the new services at the Canadian Hotel and resort as the hotel did not maintain exact records of expenses directly associated with each new service.

Canadian Hotel and Resort

Dinner and Dance: The dinner and dance with live music was an extension of the earlier version the hotel had only during summer on their patio. The idea was to introduce a service that would be available throughout the year and cater to a niche market. The hotel's primary research indicated a need for an exclusive dance club for the 40-65 year old age group. No testing of the concept was necessary as such, as

the hotel felt it had correctly identified a market and could exclusively cater to them. One senior manager informed “we went about it instinctively, we knew it would work”. They then contracted a local singer with his own radio program who had a 50,000 plus listening audience that were of the identified target group. Part of the agreement with the entertainer was that he would promote the dinner-dance offering of the hotel on his show. Once the business analysis was completed the Director Food and Beverage (DFB) who was leading the effort took authorization from the GM. Operational details of the service including the delivery process, menus (sit down dinner), appropriate selection of wine were worked out. Staffs were provided with training, particularly on wine as this was an item that they would have to sell during the evening. The entire process was then tested. Appropriate marketing strategies were outlined and implemented, including offering free dinners, gift vouchers, etc. on the entertainer’s radio show. Guests and clients were invited to experience the evening as guest of the General Manager and Director Food and

Table 3: The New Services Offered

The New Service	Description	Department Responsible	Time from Idea to Launch	Level of Success
1. Dinner and Dance with live music, well known performer in the city (1).	Fixed dinner menu, live band, celebrated local singer, Friday and Sunday nights. 150 seating capacity with additional 100 patio seating in summer.	Food and Beverage (F&B)	18 months	- increased revenue in F&B - enhanced image - market awareness
2. La Bodega Restaurant	Fine Dining and Canadian Heritage Cuisine (CHC) with largest contingent of Canadian wine	Food and Beverage	10 weeks	-VQA award -Increase in rating by CAA (in process) - created public awareness in CHC and Canadian products - recognition and support from government - increased revenue - greater guest appreciation - added feature to resort style property
3. Gondola Rides	Rides on the historic Rideau River	Front Office and Administration (Gondolas outsourced from local firm)	6 months	
4. Spa (2)	Convert 10 rooms to install a spa	Spearheaded by GM with support from owner, Sales and Marketing actively involved.	2 years	-After the first year, increased revenue. -Increase in ADR from \$126 to \$132 - Increase in demand, needs to add two more treatment rooms. -Improvement in overall image -Occupancy rate increased from 59% to 65%
5. Wireless	Introduce wireless connection service throughout the hotel.	IT	6 months	-Improved service for guests - Met guests’ requirements in keeping with current standard hotel service
6. Website Optimization	Improve the hotel website to include online reservation and offer online store to sell hotel gift cards.	Sales& Marketing	6 months	Online reservation increased by 27%

Table represents a snapshot of the various services offered at the two hotels.. (1)Services 1-3 were introduced at the Canadian Hotel and Resort (2)Services 4-6 were introduced at the US hotel and Spa

Beverage. When satisfied with all aspects of the service it was launched. The service is continuously reviewed based on sales data and feedback from guests.

La Bodega La Bodega in Spanish means “Wine Cellar” and the idea generated at the time of introducing the Dinner and Dance concept when the hotel was introducing fine cuisine. The idea was to convert the existing cellar to a restaurant that would offer a large selection of wine complemented with Canadian

Heritage Cuisine (CHC). CHC is defined as consisting of all foodstuff of Canadian origin. The DFB while searching for a Master Sommelier to train the staff learnt about a government grant that provided free training for promoting Canadian products in the Tourism industry. This also led to including 65% of over 100 different types of wine to be of Canadian origin.

The initial screening of the new service was simply a discussion with other senior members of management. The site for the restaurant required renovation in keeping with the style and theme of the restaurant. Staff received training from the Executive Chef for the food, delivery process and such as well as from the Master Sommelier on wine. Prior to officially launching the restaurant a pilot run was conducted by offering the service to local elite and guests to experience the full concept.

Gondola Rides: The hotel is located along the banks of the Rideau River on five acres of land and the management thought it appropriate to introduce Gondola rides. It is the only hotel in the city that offers this service. A local company was contracted to provide the Gondolas and the hotel built a dock as well as implemented a system of making reservations and ensuring a smooth operation of the service for the guests. The service was not to generate revenue but to maintain the image of a resort that the hotel identified itself with. The service was offered on the hotel's webpage and promotional materials were developed for in-house guests. The service was first offered when the hotel held a reception to celebrate the 15th anniversary.

US Hotel and Spa

Spa: The area in which the hotel is located is considered an upscale area of the city with a number of spas catering to the needs of the locals. The owners conducted extensive market research, conducted over eighteen months, on spas in the area and the findings suggested an additional revenue stream should they introduce it in the hotel. Thus, they converted ten rooms on the second floor to construct the spa. The hotel hired a spa director who was an expert in the field, the general manager took the lead on the project and the DSM was actively involved throughout the process. Construction took about four months and it took a total of two years from the time of conception till launch. In terms of "killing" the project that was a possibility after the business analysis was conducted. However, after further review and analysis of the figures and with the financial support secured from the bank the project was revived. During the process they have sought feedback from their employees, customers, senior members of management and their family members at different stages of the innovation process. The hotel went on a "phone blitz" to reach customers to introduce the service. They also targeted their customers with advertising and promotion on both electronic and print media. Billboards were strategically placed to ensure visibility. The introduction of the spa resulted in changing the name of the hotel from a "Lodge" to a "Hotel and Spa". The post launch review is an ongoing process and they are currently considering adding two more treatment rooms. The DSM attributes the increase in ADR from US\$126 to US\$132 and the increase in occupancy rate from 59% to 65% to the introduction of the spa. The initial cost estimate was US\$750,000 and eventually they had spent US\$1.5 million. First year revenue was about US\$ 0.5 million and by the third year, revenue increased to US\$650,000.

Wireless: In keeping with the times and the need for guests to stay "connected" the hotel felt it was necessary to introduce wireless connection throughout the property. "It is one of the new services that was never a No-Go, although the business analysis stage is when we would normally decide if we are to continue, shelve for now or discontinue" states the DSM. It cost the hotel US\$46,000 to introduce the service and fully installed in six months. The wireless service was added phase wise to each floor and took six to eight weeks to complete all rooms. Thus no full scale launch as such was conducted. The service was available as soon as the installation in the area was complete. The service provider selected in a major company catering to hotels all over the United States. In order to provide better service the guests

could call a 1-800 number to reach customer support to ensure quality service with the wireless connection.

Website Optimization: In their bid to offer new services in keeping with current guests' needs the hotel thought it necessary to improve the website. The website optimization was introduced to provide easier access to reservation. The online reservation option has led to an increase of over 27% in bookings. The website also introduced an option for guests to buy gift cards that were redeemable for any service the hotel provides. The DSM was the lead member of management for this service. The website was included in all marketing and promotional materials, including prominent mention on the hotel's radio advertisements.

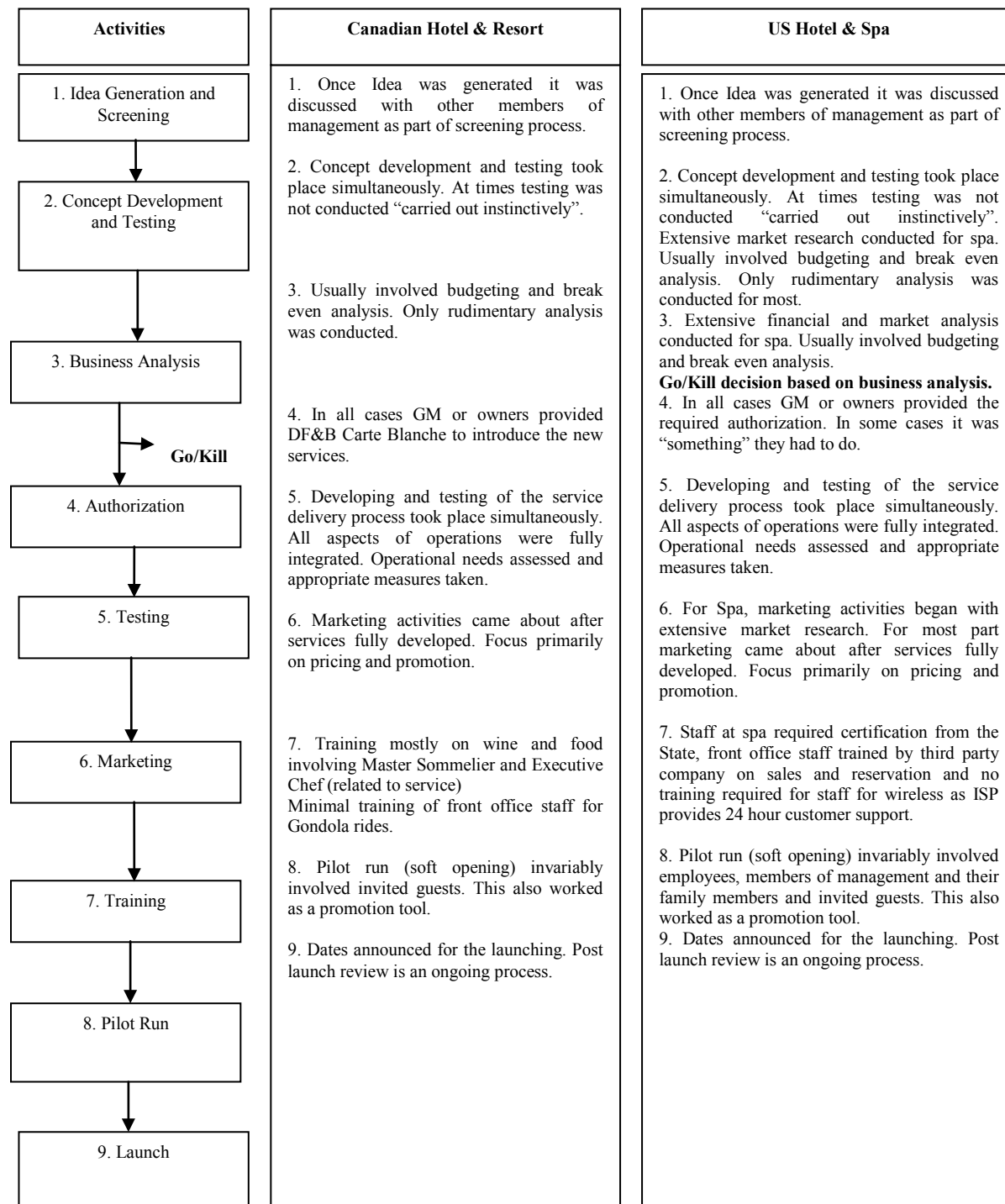
Resulting Model of NSD

In all cases it was pointed out to us that the strategic planning stage is part of the overall hotel strategy. The distinct stage from which the service development process began was with the idea. In all these cases the ideas were generated by the members of management. It was also pointed out that the initial idea screening, which consisted of brainstorming with other members of management, took place at the same time and was almost inseparable from the idea generation. The testing of the concept was not necessary according to the managers as they went about it instinctively. Business analysis consisted of some basic and rudimentary calculations such as approximate overhead cost and breakeven. The only deviation from that was with the introduction of the spa at the US hotel where extensive financial and market analysis was conducted. This was necessary as it involved a substantial amount of investment and essential for securing bank financing. Authorization came from the General Manager or owners of the property. It is at this stage that the "Go/Kill" decision is made. There was a possibility of "killing" the spa project had the business analysis suggested poor ROI. Design of the delivery system was not in any formal format. Most of it took place in the form of verbal communication and interoffice memorandums. For the marketing strategy, pricing and promotion strategies were the main focus. Competitive pricing was used for the spa at the US Hotel and price of entrée at La Bodega ranged from \$19 to \$36. Promotion at the US hotel entailed print and electronic advertising, telemarketing and billboards. The hotel's website was included in all marketing and promotional materials, including prominent mention on the hotel's radio advertisements.

At the Canadian hotel promotion involved in-house advertising for all services, outside signage as property was on a major road in the city. Dinner dance was also promoted through Entertainer on his radio show. The pilot runs akin to "soft opening" were also used as a promotional tool as clients, elite of the society and loyal guests were entertained by senior members of management. After launch the sales and guest comments are tracked and continuously reviewed.

As one senior manager, in the beginning of the interview emphasized, NSD to be an instinctive and creative process we asked at the end of our interview how they felt about the process we had outlined. They were of the opinion the process was just as much systematic as it was creative. The steps identified are more activities than stages that were carried out in the overall operation of the hotel. The only critical point when the project is "killed" is if the authorization is not approved. One argument for the steps that were identified in the NSD process was that it was just the normal course of operation in the hotel that they never labeled in the past. Figure 2 below provides the activities that took place in the development of new services in the hotels we investigated.

Figure 2: Activity Based Innovation Process in Hotels



The figure maps the activities that took place from idea to launch of a new service.

MANAGERIAL IMPLICATIONS AND CONCLUSION

Although this study is subject to further testing and refinement, it does however, have implications for the managers. Hoteliers may find this systematic process of new service development to yield better results,

remain competitive and be recognized as an innovative property in the market. Implementation of a NSD process will motivate and aid the manager to periodically introduce new services. The activities outlined here are a guideline for managers to adopt. It can be used as a checklist when developing a new service.

This study investigates only two hotels, both independently owned and of varying sizes. However, with the six new services that they launched we were able to explore the innovation process. Our findings suggest that NSD process is both a combination of structured steps as well as one that involves a creative process. Although we are unable to generalize the findings based on our study, we find distinct differences in the NSD in hotels from other service industries. We have used both the linear and parallel models to compare and understand, and find that they are not transferable. Although some steps were taken simultaneously we find the activities involved were more or less linear in approach. We also find the “go/kill” decision as only a one time critical decision. Thus, once the new service idea and concept is approved it is seen to fruition. The only exception is when the investment for the new service is substantial and may require financing as was evident in the introduction of the spa. The study reveals that the pilot run is also a means to promote the new service. Clients are selected and invited based on loyalty and prospective business value to sample the new services. The study also reveals that the process is the same for both Canadian and US hotels and that the size or class of the property did not have an effect. Although this study does not investigate a sizeable sample to generalize the results we find that this exploratory study has provided us with some insights to further test our findings on other hotels of varying size and class, leading to an acceptable NSD process model. This suggests that further studies be conducted on a larger sample to fully understand the innovation process in hotels. Further research could also be conducted to ascertain the success of the new services.

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