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LETTER FROM THE EDITOR

Welcome to the *Academy of Accounting and Financial Studies Journal.* The *Journal* is the official publication of the Academy of Accounting and Financial Studies, an affiliate of the Allied Academies, Inc., a non profit association of scholars whose purpose is to encourage and support the advancement and exchange of knowledge, understanding and teaching throughout the world. The mission of the *AAFSJ* is to publish theoretical and empirical research which can advance the literatures of accountancy and finance.

As has been the case with the previous issues of the *AAFSJ*, the articles contained in this volume have been double blind refereed. The acceptance rate for manuscripts in this issue, 25%, conforms to our editorial policies.

The Editor works to foster a supportive, mentoring effort on the part of the referees which will result in encouraging and supporting writers. We continue to welcome different viewpoints because in differences we find learning; in differences we develop understanding; in differences we gain knowledge and in differences we develop the discipline into a more comprehensive, less esoteric, and dynamic metier.

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INTEREST RATES ARE STICKY: IMPLICATIONS FOR THE YIELD CURVE

Armand Picou, Texas A&M University- Corpus Christi

ABSTRACT

Following recent years decline in interest rates due in large part to a response to the financial meltdown in the form of quantitative easing, this paper tests the uniformity of the interest rate lowering across selected bond ratings. In theory, the drop in interest rate should be uniform across securities. This assumption is examined for two time periods (2007 and 2012) using both simple rate comparison models and a more sophisticated Certainty Equivalence method to control for changes in capital structure.

The models apply known risk free rates obtained from the U.S. Treasury and corporate bond rates from Moody's Historical Data sets. The results are show that interest rates are sticky or resistant to reduction at the lower bond ratings. Implications are the risk reduction due to persistent and sustained downward pressure on interest rates does not fully override the potential losses from a low bond rating, meaning interest rate reductions are not linear, implying stickiness in rates. This implies the separation between yield curves of various bond ratings has changed since 2007.

INTRODUCTION

Interest rates have fallen somewhat in over the past few years following the unconscionable losses in the real estate mortgage market, followed by the government bailout of the partially responsible institutions, leading ultimately to a period of easy money now known as quantitative easing. Until recently (2013), the impetus for firms to take advantage of the lower rates with heavy rollover of existing debt to the lower rates has largely not materialized.

Expansion plans have been effectively put on hold due to the lack of strong consumer demand. Businesses wisely refrain for issuing new debt in uncertain markets, but this does not fully explain why firms do not call existing debt and refinance at lower rates. Refinancing requires a financial incentive because of the cost of both calling existing debt and reissuing new debt is ultimately paid for by the corporation raising their effective cost of capital.

If a reduction in interest rates is not uniform across all risk classes, then incentives to refinance would vary according to the bond rating. This paper examines the change in interest rates in two ways. First the absolute change in rates is measured to see if the reduction across bond ratings is uniform. Then a more rigorous test using a certainly equivalent method is applied to determine the comparative change in rates implied in various bond rating categories while controlling for changes in capital structure.

LITERTATURE REVIEW

The Certainty Equivalent (CE) method in capital budgeting is thought to be superior to applications of a Risk Adjusted Discount Rates (RADR), (see Sick 1986, Zhang 2010, Cheremushkin 2010 et.al.). The individual CFs are adjusted to reflect the cash that is assured with little or no risk. The Risk Free (Rf) rate is then used as the discount rate in the CE method, once the CFs have been reduced to account for risk. The 10 year Treasury serves as the proxy for the Risk free rate. To evaluate this question, estimates of past and present cost of capital are coupled with past and present Rf data to examine the stability of the CE model.

There are two assumptions of the Certainty Equivalent method. First, practitioners assume that future CFs are accurately adjusted downward to the likely cash inflow estimates accounting for minimal projected sales. Since the discount rate for CE calculations is the Rf rate, a known value, then the estimation of the CE cash flows becomes the main focus of concern. If the CF estimates are either too high (resulting in the NPV biased upward), or too low (resulting in the NPV biased to reject), errors in capital budgeting decisions are likely to occur. To correctly apply the CE method, it is of paramount importance to accurately estimate CE cash flows. One can only hope the cash flow reductions applied in the CE method represent realistic financially distressed sales at the margin otherwise the project NPV would biased. To avoid this pitfall, the present study uses established CFs from example problems commonly found in academic texts: See Brigham and Ehrhardt (2009) and Brigham and Daves (2013).

Risk adjustment under uncertainty is not new and constitutes an ongoing process of discovery in the literature. For early discussions of uncertainty reduction bias in capital budgeting see Mukherjee (1991). The issue is primarily the problem of the timing of the uncertainty. Specifically, the further into the future the CFs are predicted, the more uncertain the estimates. The RADR method offers as its' strength the security of discounting. In application a fixed cost of capital results in future CFs being increasingly reduced as they grow further from the present time frame. In reality it is the random timing of the future CFs that is unknown. Unanticipated changes in the final CF models, both good and bad are to be expected. In Perrakis (1975) the author allows an element of randomness in future estimates as an improvement to the model. The current study recognizes this potential improvement but for purposes of this analysis assumes no variation in CFs between time periods.

In Bar-Yosef and Mesznik (1977), the authors discuss misapplications of the CE method for evaluating risky projects. The authors conclude that a constant discount rate is only appropriate if risk increases at a constant rate with the passage of time. The current study follows this recommendation by assuming the risk on future CFs increases proportionally over time.

The cash flow reductions typically applied in the CE method must represent realistic financially distressed sales at the margin otherwise the project NPV would be biased, see Kudla (1980). Predicting future revenue is at best an estimation technique based on economic

forecasting, industry experience and educated guessing. Whether CE cash flow estimates ever match with actual ex-post performance for a marginal firm is unknown as no studies use real data. In industries where there is long-term sales data available, current trends as well as knowledge of a base, foundation or lowest historical level of sales may well lead to accurate CE Cash Flows.

The second assumption considers the choice of the Rf rate as appropriate for discounting the risk adjusted future cash flows. In Thorne (1983) the author supports the use of CE analysis using the Rf rate as managements attitude toward risk may detrimentally bias the Cost of Capital and result in project rejection. As suggested by Thorne, this study calculates a project value over two time periods assuming no change in attitude to risk. Similar also to Bohren (1984), this study assumes the CE cash flow properties and market valuation estimates are correct and decision errors are avoided. This allows the examination of the CE model for potential misapplications related to capital structure differences across industries that result in a unique cost of capital in every time period but no deviation in the choice of the Rf rate of return.

DISCUSSION

With these two assumptions, stability of cash flow estimates over time and the use of the Rf rate respective to each time period, this study proceeds to evaluate the stability of using the CE model. As the Rf rate is at a historic low, this study questions the wisdom of using the CE method. If it is possible the Rf is depressed artificially, then its usefulness for CE calculations may be compromised. This implies that cash flows today as compared to say 5 years in the past should be adjusted downward further to compensate for risk not contained in the Rf rate. If empirical support is found, it might be possible to adjust the Rf used today to reflect underlying risks assuming CFs are held two period constant. However, there is no justification for an additional reduction in CE cash flows simply because the Rf rate has declined.

Corporations typically adjust for market returns over time by recalculating their WACC in each time period. Additionally, Corporations also take into account changes in the riskiness of cash flows by risk adjusting their cost of capital for the time period under consideration, an adjustment this paper cannot make due to lack of internal company data.

To illustrate the problems over two time periods, consider the following project cash flows. For a project costing $ 2500 with certainty and producing $ 700 in CE cash flows for 4 consecutive years, the choice of the Rf rate would change the accept /reject decision. Using todays 10 year Treasury Bond Rate of 1.8 (12/2012) produces an NPV = $ 178.40; an acceptable project. Considering a similar project in 2002 and using the 10 Treasury Bond rate of 10 years ago (4.8%), the NPV becomes $ -6.26 and the project is rejected.

The above example raises interesting questions. If the CE method produces differing results over time, does the RADR method produce similar results or does it diverge from the theoretically predicted result. The direction this thought produces is the need to simulate

estimates of the WACC for two time periods based on available historic data. Once the WACC estimates are produced, the RADR can be determined using an assumed constant spread between WACC and RADR ; i.e.: project risk does not change.

One additional parameter of consideration relates to how various industries differ significantly in the weights within their capital structures. Some industries by virtue of collateral have higher debt loads when compared to service industries with little debt on their balance sheet. When compared based on percentage of debt to equity, industries are unique. Thus multiple WACC estimates will be needed to cover the range of possible capital structures. The estimates are created for the two time periods and compared to the theoretical results needed to make the two competing methods equivalent.

DATA AND METHODOLOGY

The examination covers two time periods of widely different rates of return to test the stability of the Certainty Equivalent Model. In 2007, rates were significantly higher than in 2012. Historically, the 2007 period was relatively calm compared to the subsequent economic upheavals and quantitative easing that lead up to the low 2012 rates.

For the Risk free rate (Rf) the US Treasury provided weighted average 10 Year Bond rate is used for the two time periods. The weighted average yields for the 12 month period are available on the Treasury.gov website. Weighted averages are used rather than simple averages to establish a central tendency for the annual period studied.

Similarly, Bond Yields for 2007 and 2012 are collected . The data was collected from Moody's Seasoned Corporate Bond Yield Historical Data. Both AAA and BBB (also known as BAA) yields are utilized in this study. See TABLE 1 for Treasury and Corporate Bond Yields.

Table 1
Weighted Average 10 year Treasury Yields
And Moody's Historical Corporate Yields
With Spread and Basis Point Change

Annual Period	Treasury	Spread	AAA	Spread	BBB
2007	4.5	120	5.7	90	6.6
2012	1.8	190	3.7	120	4.9
Change	(270)		(200)		(170)

Overall in Table 1 the Risk free rate has declined an average of 270 Basis Points (BP) during the bouts of quantitative easing. However, Corporate Securities have been resistive to change with AAA securities falling 200 BP and BBB securities dropping only 170 BP. Contrastingly, spreads have widened somewhat. The triple A Corporates went from a 120 BP to a 190 BP spread while the triple B Corporates also lengthened with 90 BP becoming 120 BP.

The BBB securities are fully 100 BP higher than in past relationships to treasuries, demonstrating some stickiness to past rates and resistance to lowering.

Using 2007 historical data where the Rf = 4.5% to find the CE for our project, an estimate of the RADR necessary for parity is calculated. From this first estimate of the RADR, an estimate of the WACC is found. Using the WACC and various weightings of debt and equity and Historical Bond Data leaves only one parameter to estimate for each set of capital structure weightings, that of Return on Stock (Rs). Assuming the investors required return holds for the two time periods, the earlier Rs estimates are then used with the current periods Bond Data to estimate current WACC across a range of capital structure weights. The process essentially uses the earlier period results to reverse the calculations in the more recent time period; from Stock return, to WACCs, to RADR estimates. Comparisons are then made of the recent RADR estimates to the theoretical RADR value necessary for parity with the CE method when Rf = 1.8 (2012).

The progression of calculations is as follows:

1. Estimate the CE (using Rf @ t-5)
2. Assume the NPV using the RADR (t-5) solution = NPV of the CE (t-5)
3. Calculate the Risk Constant (RC) according to:
   WACC(t-5) = RADR(t-5) – Risk Constant.
4. Accepting the Target WACC (t-5) and using AAA/BBB historical data and a range of weights for Wd and Ws and two tax brackets (20% and 30%), estimate possible values for Rs(t-5)
5. Use Rs(t-5) values @ t-0 to estimate possible WACC (t-0).
6. Find estimates of RADR(t-0) = WACC(t-0) + Risk Constant, using the RC from (t-5).
7. Compare Estimated NPV with the RADR(t-0) to actual NPV using CE(t-0).

The project cash flows used under uncertainty and with Certainty Equivalent weightings are presented below in Table 2. The cash flows are the standard cash flow examples encountered in the academic texts used in Finance classes.

Initially, considering the cash flow example taken from the literature, it is necessary for the RADR to be 21.62% in 2007 for the two methods to produce essentially equivalent results. The next step is to use the estimated RADR as the basis for determining the WACC likely in the first time period with various weightings. Those results are then used to extrapolate the RADR for the next time period.

If the CE method is in theory equivalent to the RADR method, then the NPV for the project should be equivalent by either method when applied in the two time periods. Now consider the 2012 project under the same two criteria. The Rf rate has dropped by roughly 3 % and after calculating the WACC for the RADR to have the equivalent answer, the RADR must now drop to 18.22 %, a difference of 3.80 %. Is it possible for the drop to occur? This study

examines that question by estimating likely WACC values for various capital structure weighting.

Table 2
Project Cash Flows for Both 2007 and 2012

Year	Projected Cash Flow	Certainty Equivalent Cash Flow
0	($ 2000)	($ 2000)
1	1000	700
2	1000	700
3	1000	700
4	1000	700

It is possible to argue the cost of capital difference between the two time periods makes the project unacceptable when the discount rate is higher as is the case in the last example estimate. However, since the RADR method and the CE method should produce equivalent results, a problem arises in the argument. The accept / reject decision of both methods (CE and RADR) should be the same in both time periods not just for one method.

With overall rates declining it is expected this should make projects more acceptable if the cash flows remain unchanged. Rather than focus on the magnitude of the NPV, this study examines the discrepancy found between the two methods and how the differences change from one period to the next. For the two methods to be equivalent, they must produce the same answer in both time periods. The 10 year Treasury rates have dropped from 4.5 to 1.8, an almost 3% drop. This study examines is it feasible to infer that the Weighted Average Cost of Capital (WACC) has also dropped by 3% for the typical firm during the 5 year time period.

According to the text examples used, for most firms, a WACC for a replacement decision should be around 10 %, while a risky exploratory project might be a RADR of 20 % or more. So from the standpoint of the typical firm, the RADR could be 22% for a firm with a WACC of 10%. The difference is the risk adjustment of 12% applicable to the industries' perception of project risk. We assume this risk adjustment is constant for the two time periods.

Recall that the WACC reflects the tax advantage of debt and CE does not. Either the CE estimates or the Rf rate should be corrected to capture this benefit. Studying the effect of taxes on the RF rate would look as follows. In a 20 % tax bracket the Rf rate differential would drop from 3 % to 2.25 %. In a 30% bracket, the differential would reduce to 2.1 %. And in a 40 % tax bracket, the differential would fall to 1.8%.

The question still remains as to whether a firms' WACC would change significantly over time to accommodate the CE method having similar answers in both time periods. Furthermore, would the WACC be so high as to reflect the risks incorporated in our examples.

Before discussing the two-period analysis procedure, some assumptions of the model with discussion is needed. The assumptions of the two-period analysis are as follows:

1. The project cash flows found in table two are the same for both time periods
2. The RC; defined as: RADR – WACC = RC remains constant for both time periods.
3. Despite changes in yield between the two-periods, the project risk adjusted net present values are equivalent to the CE net present values in each period.
4. The Bond rating of the hypothetical corporation remains constant during both test periods.
5. The investor's desired rate of return on the corporate stock remains constant for both time periods

Corporations should also adjust for the reduction in return in their capital structure.

RESULTS

The initial spreadsheet results are condensed into Table 3. Table 3 contains the 2007 estimates of the Rs estimates for various weights.

Table 3
Estimates of the 2007 Stock Returns using WACC = 14.62% While controlling for Tax Bracket, Bond Rating and Capital Structure Weights

			Weights = % Debt / % Equity								
	Tax	**Bond**	**10/90**	**20/80**	**30/70**	**40/60**	**50/50**	**60/40**	**70/30**	**80/20**	**90/10**
Rs	**30**	**AAA**	15.8	17.3	19.2	21.7	25.3	30.6	39.4	57.1	110.3
	20	**AAA**	15.7	17.1	18.9	21.3	24.7	29.7	38.1	54.9	105.2
	30	**BBB**	15.7	17.1	18.9	21.3	24.6	29.6	38.0	54.6	104.6
	20	**BBB**	15.7	17.0	18.6	20.8	24.0	28.6	36.4	52.0	98.7

The results indicate the Rs estimates differ little between either bond selection or tax bracket except at the higher debt loads. Table 4 presents the results for the 2012 WACC estimates assuming the same Bond and Tax based values of the Rs estimates from 2007.

In Table 4, the 2012 WACC estimates are below the 2007 WACC figure of 14.62 used as the basis for the extrapolation. Since Bond rates did fall and stockholder returns, taxes and capital structure weights are assumed to remain constant, these results are appropriate

Table 4
Estimates of 2012 WACC figures using 2007 Stock Returns Estimates While controlling for Tax Bracket, Bond Rating and Capital Structure Weights.

			Weights = % Debt / % Equity								
	Tax	**Bond**	**10/90**	**20/80**	**30/70**	**40/60**	**50/50**	**60/40**	**70/30**	**80/20**	**90/10**
WACC	**30**	**AAA**	14.3	14.1	13.8	13.5	13.2	12.9	12.6	12.3	12.0
	20	**AAA**	14.2	13.8	13.5	13.1	12.7	12.3	11.9	11.6	11.2
	30	**BBB**	14.4	14.1	13.9	13.6	13.4	13.1	12.8	12.6	12.4
	20	**BBB**	14.2	13.9	13.5	13.2	12.8	12.5	12.1	11.8	11.4

Now that the 2012 WACC figures are estimated, either by adding the assumed risk adjustment constant of 7 % to each of those figures to determine the RADR, or by finding the WACC for parity, the comparison to the theoretically perfect answer can be used to shed light on the stability of the CE method. In 2012, using the same cash flows as 2007, the CE method using the 1.8% Rf produces a NPV = $ 678.4. Using the CE-NPV to determine the appropriate RADR for the normal cash flows, 18.2% is determined as the theoretically correct risk adjusted discount rate. Subtracting 7% produces a 2012 WACC = 11.2%.

With the theoretically correct WACC at 11.2 %, only one estimate matches this result; namely a firm with AAA debt, with 90% Debt in a 20% tax bracket. It is important to note all other more plausible solutions are higher than the corner solution.

Overall, estimated results are about 200 basis points higher from expected results. However, this general result differs for the various weightings found in capital structures. Looking at potential capital structure there is more error in some due to the high weight given to stock. The industries that seem least affected by differences in the estimates / expected value comparisons are those with very high debt loads in their capital structures. For these industries the CE method would be more in line with the RADR approach and should be considered when making capital budgeting decisions. Those industries where a greater inaccuracy may occur for the application of the CE method in the current environment of low interest rates should use caution.

A quick examination of the S&P 500 firms finds that only about 4% of the firms in the index have capital structures with 85% or greater debt loads. Of the 20 firms found with high debt loads, half (10) are in the financial sector, and 2 are in the consumer discretionary sector. In general the Financial Sector appears to have the capital structure best suited for the CE method under today's current interest rate environment.

CONCLUSIONS

With the exception of Treasuries interest rates and the planned pressure on interest rates from QE, theory projects a uniform change in rates over Bond rating classes, especially when dealing with averages rather than point measurements. The AAA Bods show some hesitancy to follow Treasury yields. This hesitancy is even more pronounced for the BBB rated bonds.

Perhaps partially due to AAA/BBB bond rates having remained at higher levels, the implications of the results may be somewhat reduced or marginalized. Were it not for quantitative easing, would the Rf rate become somewhat higher instead of the present 1.8, with subsequent increases in AAA /BBB rates? This higher rate would come close to creating equivalency in both time periods. One explanation is that the Rf rate is artificially depressed resulting in a destabilization between the two competing models. Contrastingly, there are multiple factors affecting interest rates.

While the cost of money is not responding to normal pressures, there may be some more fundamental factor at work. As a cause, production opportunities seems reduced as industry has not expanded during this period. Similarly, inflation remains low also indicating yields should be lower. From the consumer side; if consumers have a distinct drop in preferences for current consumption coupled with heightened risk aversion, this should reduce prices and raise yields. However, this reasonable explanation is countered as we see investors starved for yield and even Junk Bonds are selling briskly.

If consumers who invest in debt cannot reconcile the risk reduction implied by lower Treasury rates then the BBB rated securities will remain sticky, or hold to higher yields as a likely result. Even with investors chasing yield as has been mentioned recently in the financial press, rates remain largely fixed at approximately 100 Basis points higher than expected.

From a corporate perspective, firms should be willing to roll over their debt to lower their cost of capital even if they elect to not change their capital structures to take advantage of the cost savings. The certainty equivalent method shows this to be unlikely. There is insufficient evidence to support the greater use of debt in corporate capital structures, meaning that corporate risk has not increased appreciably even with the lowering of bond rates across credit classes.

Indications are that investors are understandably more cautious about risk potential for especially the BBB rated bonds. That caution increases with lowered bond rating has future implications for markets. As Quantitative Easing is unwound in 2014-2015, the interpretation by investors may more strongly affect lower rated bonds.

REFERENCES

Bar-Yosef, Sasson and Roger Mesznik (1977). "On Some Definitional Problems With the Method of Certainty Equivalents", *The Journal of Finance*, 32(5), 1729-1736.

Bohren, Oyvind (1984). "The Validity of Conventional Models Under Multiperiod Uncertainty", *Journal of Business Finance and Accounting*, 11(2), 199-212.

Brigham, Eugene F. and Phillip R. Daves (2013*). Intermediate Financial Management*, 10th edition, South-Western Cengage Learning, Web Extension 13-B, 1-7.

Brigham, Eugene F. and Michael C. Ehrhardt, (2009). *Financial Management : Theory and Practice*, 13th edition, South-Western Cengage Learning, Section 11-A, 1-7.

Cheremushkin, Sergei V. (2010). "Revisiting Modern Discounting of Risky Cash Flows; Imbedding Uncertainty resolution Functions into Risk-Adjusted Discount Rates and Certainty Equivalent Factors", Working Paper Series Rochester, Mordovian State University.

Kudla, Ronald J. (1980). "Some Pitfalls in Using Certainty Equivalents; A Note", *Journal of Business Finance and Accounting*, 7(2), 239-248.

Mukherjee, Tarum K. (1991). "Reducing the Uncertainty-Induced Bias in Capital Budgeting Decisions", *Journal of Business Finance and Accounting*, September Issue, 747-753.

Perrakis, Stylianos (1975). "Certainty Equivalents and Timing Uncertainty", *Journal of Financial and Quantitative Analysis*, 10(1), 109-113.

Sick, Gordon A. (1986). " A Certainty-Equivalent Approach to Capital Budgeting", *Financial Management*, 15(4), 23-33.

Thorne,Henry C. (1983). "Is Your Rate of Return to Low?", American Association of Cost Engineers, 1-6.
Zhang, Zhiqiang (2010). "Certainty Equivalent, Risk Premium an Asset Pricing", *Frontiers of Business research in China*, 4(2), 325-339.

CORPORATE SOCIAL PERFORMANCE AND SOCIAL DISCLOSURE: EVIDENCE FROM ITALIAN MUTUAL BANKS

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ABSTRACT

The social report is a tool with which Social Disclosure can be attempted. However, it may become merely a communication of the fulfilment of a series of requirements. From this perspective, this study seeks to verify, with reference to the Italian Mutual Banks, whether the intensity of Social Disclosure (SD) is indeed representative of social responsibility. The aim is therefore twofold: on the one hand, the intention is to estimate the intensity of SD by measuring the extent to which the social reports of a sample of 57 mutual banks comply with GRI guidelines; and on the other, to test the relationship between social-environmental and financial performance and the intensity of SD. The analysis shows that SD intensity is closely linked to the quality of social reports. Some categories, such as corporate identity, membership and community, exhibit high levels of disclosure whilst for other categories, like the environment, there is a lack of a coherent and unitary plan. Moreover, the degree of SD intensity does not appear to be completely represented into actual social-environmental performance and this confirms the shortcomings of the use of SD as a proxy for Corporate Social Performance.

INTRODUCTION

Although banks play a central role in the economy, there is a lack of literature on their social and environmental aspects (Campbell & Slack 2011). The social report is an instrument with which a firm accounts for what it is doing for its stakeholders (Signori & Rusconi 2009) by reducing opacity and increasing transparency. Social Disclosure (SD), however, may be only the formal fulfilment of certain requirements, and it may be used as a mere marketing strategy, which negates its deeper meaning.

From this perspective, the study seeks to verify, with reference to the Italian Mutual Banks (IMB), whether SD intensity is indeed representative of social-environmental responsibility. The aim is therefore twofold: on the one hand, the intention is to evaluate SD intensity by measuring, on a sample of 57 IMBs, the extent to which their social reports and management reports comply with the requirements of the Global Reporting Initiative (GRI, 2006) and on the other, to test the relationship between social-environmental and financial performance and the SD intensity.

The decision to treat the IMBs has been determined both by their institutional nature, whereby responsibility and solidarity are integral parts of cooperative banks' activities (Kandel & Lazear 1992), and by their traditional economic model, which is substantially dependent on the interest margin. The presence of these characteristics has been the basis of their capacity to promote the stability of the financial system even in adverse conditions, such as those in times of crisis (Groeneveld & De Vries 2009; Ayadi et al. 2010). The interest margin of IMBs is above the average for the Italian banking system, but it is counterbalanced by a higher incidence of costs related to meeting needs of customers which are traditionally more sensitive to relations (Boscia & Di Salvo 2009). For this reason, social reports assume greater significance in the IMBs, and the quality of the information given to the stakeholders becomes their distinctive and central feature (EACB 2010).

The aim of the study is to contribute to the debate on SD and Corporate Social Performance (CSP) in several respects. The first concerns the lack of research with particular regard to the IMBs: the numerous works on SD measurement mainly concern non-financial companies (Mio 2010; Secchi 2006; Unerman 1999; Willis 2003; Wiseman 1982; Adams et al. 1998; Morhadt et al. 2002; Marx 1993), or commercial banks (ABI 2003; ABI 2005; Brown & Deegan 1998; Hossain & Reaz 2007). The second aspect relates to the relationship between SD and CSP: numerous papers in the literature study the link between CSP and financial performance, but few authors have dealt with the topic examined by this study (Abbot 1979; Ulman 1985). Moreover, many papers have sought to identify a relationship between SD and certain variables representative of the firm, such as size, listed company status, market value or ownership structure, multiple listing (Gamerschlag et al. 2010; Hossain & Reaz 2007), but none of them has considered the relationship between SD and social-environmental and financial performance.

From a terminological point of view, the paper belongs within the strand of the literature on social reporting, but it should be stressed that this strand is not a homogeneous area of study. In fact, there are many different terminologies (Contrafatto & Rusconi 2005) even if the designations do not seem to differ substantially (Gray 2002; Campbell 2004). In this paper, the term 'SD' will be used to denote the reporting by managers of the social-environmental impacts of their activities to stakeholders (Contrafatto 2009). The paper is structured as follows: Section 2 analyses the main contributions in the literature; section 3 explains the methodology and the sample; section 4 presents the empirical results; and section 5 sets out the main conclusions.

REVIEW OF THE LITERATURE

There are three strands of inquiry in the literature on social responsibility (Cuesta-Gonzales et al. 2006). The first strand focuses on the role of stakeholders and the need to provide a theoretical frame which can combine financial and ethical aspects (Bowen 1953; Freeman 1984; Garriga & Melè 2004). The second body of studies focuses on empirical investigation of

the relations between social and financial performance (Griffin and Mahon 1997; Simpson & Kohers 2002; Cuesta-Gonzales et al. 2006; Callado-Munoz & Utrero-Gonzales 2009; Soana 2011). The third line of research pays attention to the need to document social performance publicly. In this regard, reporting makes it possible to give account of the company's commitment to its various stakeholders and its conformity with the production and distribution of burdens and values (Edwards & Hulme 1996; Gray et al. 1996).

This paper belongs within this third strand of studies, in that its specific intent is to verify whether SD is not only a formal communication but also a way to report substantial social-environmental and financial performance. To this end, it is necessary both to measure SD and to build indicators of social-environmental and financial performance.

With reference to measures of SD, the minimum content of social reporting has been the subject of an extensive, and still unresolved, debate among scholars (Gray et al. 1995). Definition of what a company may disclose plays an important role. There are different theoretical approaches to explaining the motivation and extent of corporate social reporting. In particular, studies on the motivations underlying social reporting have tried to place it, first, within agency theory (Ness & Mirza 1991; Bowie & Freeman 1992), then within stakeholder theory (Roberts 1992; Tilt 1994; Deegan & Unerman 2006) and political economy theory (Jackson 1982), and finally within legitimacy theory (Guthrie & Parker 1990; Deegan et al. 2002; Rahaman et al. 2004). This last theory, which currently appears dominant in attempts to explain social-environmental disclosure (Pattern 1991; O'Donnovan 1997), focuses on both the legitimation process and the role of SD in legitimation strategies (Lindblom 1994). Besides the theories just mentioned, another field of interest has become increasingly important: namely corporate communication (Van Riel 1995), on the basis of which the purpose of social reporting is to protect and enhance the company's reputation (Hooghiemstra 2000; Bardarelli & Gigli 2011). Reputation is interpretable as an intangible resource that accumulates over time according to an inertial path (Mishina et al. 2012) and that can give the company a competitive advantage (Barney 2001; Mahon & Wortick 2002).

It should be pointed out that, although these theories are very important for understanding the motivations underlying SD, they individually provide only partial explanations (Adams 2002) of the role performed by Corporate Social Reporting (Neu et al. 1998).

The factors that may affect the contents of social reporting are numerous, and they relate to the cultural and institutional context of a country (Gray et al. 1987; Guthrie & Parker 1990; Vitell & Hidalgo 2006), the industry of membership (Kolk 2005), the size of the company (Troatman & Bradley 1981) and its age (Roberts 1992), the existence of a social responsibility body within the company (Cowen et al. 1987), and differences among governance systems (Aguilera et al. 2004). However, empirical studies have concentrated on the role of individual factors in different contexts, countries and years. As a consequence, they are hardly comparable (Adams 2002).

On the other hand, because the social report is a voluntary instrument, empirical analysis has proposed a variety of standard guidelines to support enterprises and foster best practices (Cardillo & Molina 2011). With regard to social-environmental performance indicators, SD has often been used as a proxy for Corporate Social Performance (CSP) when assessing the relationship between Social Performance and Financial Performance (FP) (Blacconiere and Patten 1994), but with ambiguous results. Some empirical analyses find a positive relationship between CSP and FP (Blacconiere & Northcut 1997; Freedman & Stagliano 1991), but others report a negative one (Meznar et al. 1994); yet others find no relation (Freedman & Jaggi 1986; Patten 1991). The heterogeneity of the results obtained, when the CSP is proxied by the SD, highlights the existence of a weak link between the two aspects (Ulmann 1985). Moreover, there are some studies that, with reference to the reliability of social-environmental disclosure, have shown no association between the contents of the report and current performance (Freedman & Wasley 1990; Wiseman 1982). Social performance may sometimes be overestimated in SD in order to create the impression of a company sensitive to social issues (Abbot & Monsen 1979). At other times social performance may be underestimated because of a lack of resources or inadequate and incomplete information.

SD is used as a proxy for CSP because of the lack of shared social performance measures in the literature. In fact, besides SD, empirical studies use different tools to measure social performance, such as: (a) surveys carried out by means of questionnaires (O'Neil et al. 1989; Ruf et al. 1998); (b) indicators of reputation like, for example, the Corporate Reputational Index (CRI) measured by *Fortune Magazine* (Tichy et al. 1997; Stanwick & Stanwick 1998), or the degree of compliance with the Community Reinvestment Act (Simpson & Kohers 2002); (c) mono-dimensional indicators that evaluate individual aspects of the CSP like dialogue with the local community (Ogden & Watson 1999), or corporate crimes (Davidson & Worrell 1990); and (d) multi-dimensional indicators such as the ethical rating (Brammer & Pavelin 2006; Van De Velde et al. 2005; Soana 2011) or the Domini Social Index 400 issued by the American company financial analysis Kinder, Lyndenberger, Domini & Co., or Sustainability Indexes such as the Dow Jones Sustainability World Index (DJSWI) and The Financial Times Stock Exchange4Good. All the methods mentioned have made an important contribution to research but each of them has limitations. Moreover, these indicators are not always available. They only refer, in fact, to a limited number of companies and in a limited number of countries. In particular, for the purposes of the present study, these criteria cannot be used because they are not available for IMBs.

The present paper, therefore, in determining whether the social-environmental and financial performance of IMBs is expressed in SD, uses some empirical indicators drawn from the literature and described in the next section. The proxies introduced try to reconcile the substance of the hypothesised phenomena with the concrete availability of public information.

METHODOLOGY AND DATA

From a methodological point of view, a two stage-process was followed to answer the research question. In the first stage, the score of SD intensity was constructed, while in the second stage that score was related to factors used as proxies for social-environmental and financial performance.

Social disclosure intensity

Although the social report is a useful tool, it is not mandatory. Every bank, at its discretion, fills in the document with the information which it considers most appropriate. In light of this consideration, in the first part of the analysis SD intensity scores were assigned to a sample of IMBs that had published their 2010 social reports on their websites. The SD intensity score was defined on the basis of the compliance of social reports with the "Guidelines for sustainability reporting" issued by GRI (2006; 2011), integrated by the Financial Services Sector Supplement (GRI 2008) specifically conceived for financial firms. To be noted is that this Standard comprises numerous items that can be treated with various degrees of completeness. In fact, each item may be simply mentioned or extensively documented.

Table 1: GRI categories and related assignable high scores (GRI 2006; GRI 2008, level C)

GRI Categories	Items	Max score	%
Strategy, organizational profile and report parameters	21	27	22%
Governance, commitments and engagement	6	12	10%
Economic performance	8	18	14%
Environmental performance	19	21	17%
Social Performance *of which*:	29	47	38%
Labour practices	*9*	*11*	*9%*
Humain rights	*7*	*7*	*6%*
Society	*8*	*16*	*13%*
Product responsibility	*5*	*13*	*10%*
Total	112	125	100%

To this end, on a preliminary basis (a) the research reported in this paper considered only the content requirements for level C of core GRI items; b) core items were split into two classes: qualitative and quantitative. The former include items that require descriptions of policies or strategies implemented, while the latter refer to quantitative indicators whose presence can be simply observed. The strategy used to define the scores was as follows: (a) 0 points were awarded to the qualitative items if they had not been considered; 1 point if the items had been briefly considered and described; 2 points if the items had been considered in more detail; 3 points if the items had been entirely considered. As regards the quantitative items, 0 points were assigned if the items were not present and 1 point if they were present. Table 1 summarizes the

categories and the number of items per category of the GRI, together with the maximum score attributable, with the criteria defined above, to each category. The analytical scores assigned to each item are listed in Appendix 2.

The search for the items was conducted on social reports and on management reports on operations. The analysis was restricted to the two public documents mentioned above and downloaded from the website of each bank.

Content analysis (Krippendorff 2004; Neuendorf 2002), based on careful reading of the two public documents, was applied to quantify the intensity of disclosure. To give greater validity to the analysis, the scores based on the GRI guidelines were assigned by the same researcher twice at a distance of 5 months from each other. The differences were resolved by reviewing and re-reading the social reports concerned.

Social-environmental and financial performance indicators

For financial performance the literature and practice agree on a set of indicators based on market measure (Cochran and Wood 1984; Shane and Spicer 1983; Preston 1978; Simerly 2003) or accounting measure, (Turban & Greening 1997; Russo & Fouts 1997) or perceptual measure (Orliztky et al. 2003). Accounting-based measure is the criterion followed in the paper. In particular, following the literature (Waddock & Graves 1997; Mahoney & Roberts 2007), ROE and ROA are used. As the risk and financial structure can affect the financial performance (McWilliams & Siegel 2000) many other indicators are used in the paper to account for solvency, riskiness and efficiency (table 2).

As stated above it is hard to find an all-encompassing and exhaustive CSP measure (Carroll 1999; Wood 2010). In this paper, following Igalens and Gond (2005), five main dimensions are considered in measuring CSP, covering the principal stakeholders: Community and Civil Society; Corporate Governance; Clients and Suppliers; Hygiene, Safety and the Environment; and Human Resources. Each of them are proxied by indicators shown in Table 2 built harnessing the information displayed in social reports and financial statement of the banks.

In Table 2, the indicators labelled 1 have been constructed as the difference – changing the sign (with the exception of deposit rates) – between the value of the indicator in the i-th bank in the sample and the average value of the indicator in the entire sample. In this way, the banks that have an interest rate or energy costs higher than those of sample are negatively considered for CSP. The indicators labeled 2 instead represent information relevant for approximating: (a) the degree of customer dissatisfaction, (b) participation by members, (c) mutuality, and (d) the bank attention to families and to SMES. Unfortunately, only a few banks disclosed such information. The unavailability of these data for most of the banks in the sample suggested replacing the indicators highlighted with binary variables assuming a value equal to 1 for the banks which gave the information and zero for the others. The lack of information highlighted thus negatively affected the SD intensity score.

Table 2: The set of indicators used to synthesise social-environmental and financial performance			
Areas	**Dimensione proxy**	**Micro level indicators**	**Data source ***
Financial area	Solvency	Equity/gross loans to customers	AR
		Equity/customer deposits	AR
		Equity/net loans to customers	AR
		Total assets/equity	AR
		Tier 1 capital/total assets	AR
		(tier 1+2 capital)/total assets	AR
	Riskiness	Bad debts/net loans to customers	AR
		Non-performing loans/ net loans to customers	AR
		Net bad debts/equity	AR
		Net impairment losses on loans/gross loans to customers	AR
	Profitability	Operating income/total assets	AR
		ROE = net income/equity	AR
	Efficiency	Cost/income = operating costs/operating income	AR
		Personnel expenses/operating income	AR
		Economic value/total assets	AR
Social-environmental area	Community and Civil society	Donations and sponsorship/operating income	AR / SR
		Donations and sponsorship/number of bank members	SR
		Members' total benefit (2)	SR
		Economic value distributed to the community/total economic value	SR
	Corporate governance	Number of women on board of directors/ number of members of board of directors	SR
		Directors, auditors and managers compensation/total economic value	SR
		Number of members attending the membership meeting/total number of members (2)	SR
	Customers and suppliers	-(average interest rate on loans$_{\text{i-th bank}}$ - average interest rate on loans of bank sample) (1)	AR
		(average interest rate on deposits$_{\text{i-th bank}}$ - average interest rate on deposits of bank sample) (1)	AR
		-(net fee and commission income/total assets$_{\text{i-th bank}}$ – average net fee and commission income/total assets in the bank sample) (1)	AR
		Loans to customers/number of customers (2)	SR
		Complaints received (2)	SR
	Environment	-(energy costs/total assets$_{\text{i-th bank}}$ – average energy costs/total assets in the bank sample) (1)	AR
		-(energy costs/number of branches$_{\text{i-th bank}}$ – average energy costs/number of branches in the bank sample) (1)	AR
		-(energy costs/number of employees$_{\text{i-th bank}}$ – average energy costs/number of employees in the bank sample) (1)	AR
	Human resources	Training hours per employee	SR
* AR stands for annual report (management report, balance sheet, income statement and notes to the financial statements) and SR stands for social report.			

Principal components analysis (Lattin et al. 2003) was applied to this set of financial performance indicators, whereas principal categorical components analysis (Lattin et al. 2003) was applied for the social-environmental area, the purpose being to identify a latent structure

characterized by components able to reduce the complexity and to synthesise the information. The components thus obtained were then used: a) as input to a cluster analysis carried out to identify, in the sample, groups of banks with homogeneous financial and social-environmental characteristics; (b) in correlation analysis with the degree of SD intensity score measured in the first step of the research; and (c) to determine the factorial scores with which to compile a ranking of the banks in the sample.

Data and descriptive statistics

The analysis focused on a sample of IMBs referred to 2010. The choice of the IMBs was carried out in two steps: 1) first, the 200 largest IMBs out of the 455 existing in 2010 were selected as regards the total assets representing about 87% of the total IMBs assets; 2) then the websites of these 200 IMBs were analysed to identify those that had uploaded their social reports. In particular, of the 200 banks analysed only 57 showed their social reports updated to 2010 on their websites, representing 39.13 % of the total assets of 200 mutual banks. Moreover, given their homogeneous characteristics in terms of business model, mission and ethical values, specific context factors were excluded from the analysis. Specific country factors were also excluded because all the mutual banks are located in Italy. Table 3 shows the geographical distribution of the IMBs in the sample. Table 4 sets out the descriptive statistics of the indicators.

Table 3: Sample structure of the 57 IMBs on the basis of geographical location

	Frequency %	% with respect to total assets
North-East	35.1%	29.6%
North-West	31.6%	39.4%
Middle	22.8%	26.3%
South and Islands	10.5%	4.7%

EMPIRICAL RESULTS

SD intensity score

The SD intensity scores obtained by applying the GRI guidelines to the social reports of the IMBs in the sample are summarized in Table 5. The latter shows the descriptive statistics of the SD intensity scores with reference to the geographical location of the banks in the sample. Table 10 (see the appendix 1) instead summarizes the SD scores with reference to each bank.

Before the scores are interpreted, it should be pointed out that the aim of the research was to formally evaluate compliance of the social reports with GRI (2006). For example, a low score in the human rights category does not mean that the banks do not respect human rights, but rather that for human rights they did not report all the information required for this category by the Standards.

Table 4: Descriptive statistics of the financial and social-environmental indicators			
Areas	**Indicators**	**Mean**	**Std. Deviation**
Financial area	Equity/gross loans to customers	0.129	0.0282
	Equity/customer deposits	0.116	0.0254
	Equity/net loans to customers	0.133	0.0295
	Total assets/equity	10.554	2.0633
	Tier 1 capital/total assets	0.137	0.0291
	(tier 1+2 capital)/total assets	0.147	0.0263
	Bad debts/net loans to customers	0.022	0.0133
	Non-performing loans/ net loans to customers	0.068	0.0334
	Net bad debts/equity	0.169	0.1079
	Net impairment losses on loans/gross loans to customers	0.009	0.0041
	Operating income/total assets	0.029	0.0047
	ROE = net income/equity	0.023	0.0229
	Cost/income = operating costs/operating income	0.744	0.0976
	Personnel expenses/operating income	0.459	0.1379
	Economic value/total asset	0.027	0.0039
Social-environmental area	Women's number at Board of directors/participants' number at Board of directors	0.071	0.0785
	-(average interest rate on loans$_{\text{i-th bank}}$ - average interest rate on loans of bank sample) (1)	0.00	0.0063
	(average interest rate on deposits$_{\text{i-th bank}}$ - average interest rate on deposits of bank sample) (1)	0.00	0.0031
	-(net fee and commission income/total assets$_{\text{i-th bank}}$ – average net fee and commission income/total assets in the bank sample) (1)	0.00	0.0018
	Training hours per employees	40.111	17.7111
	Economic value distributed to the community/total economic value	0.029	0.0219
	Directors, Auditors and manager compensation/total economic value	0.048	0.0215
	Donations and sponsorship/operating income	0.025	0.0196
	Donations and sponsorship/number of bank members	0.126	0.1427
	-(energy costs/total assets$_{\text{i-th bank}}$ – average energy costs/total assets in the bank sample) (1)	0.00	0.0001
	-(energy costs/number of branches$_{\text{i-th bank}}$ – average energy costs/number of branches in the bank sample) (1)	0.00	6.3286
	-(energy costs/number of employees$_{\text{i-th bank}}$ – average energy costs/number of employees in the bank sample) (1)	0.00	0.6533
NB: Four indicators of the socio-environmental area were not reported as represented by dummy variables. Indicators labeled as 1 have a zero mean because by construction they represent the mean of the variations of means.			

Table 5: Average scores of the SD intensity obtained by applying the GRI guidelines									
Locations	**Scores**	**Locat.**	**Scores**	**Locat.**	**Scores**	**Locat.**	**Scores**	**Locat.**	**Scores**
North-East		North-West		Middle		South and Islands		Italy	
Median	27,00%	Median	29,50%	Median	30,00%	Median	30,50%	Median	30,00%
Mean	27,50%	Mean	30,78%	Mean	29,69%	Mean	33,67%	Mean	29,68%
Std Dev.	7,54%	Std Dev.	8,11%	Std Dev.	5,11%	Std Dev.	12,56%	Std Dev.	7,92%
Max	52,00%	Max	50,00%	Max	38,00%	Max	58,00%	Max	58,00%
Min	19,00%	Min	20,00%	Min	18,00%	Min	23,00%	Min	18,00%
The table was constructed on the basis of the criteria described in Appendix 2 applied to the social reports of the 57 IMBs in the sample.									

In those circumstances, the average SD intensity, expressed as the degree of conformity of social reports with the GRI, appears unsatisfactory since it shows values below 50%. Moreover, there are no statistically significant differences, in term of SD score, among IMBs located elsewhere, as corroborated by the F-Test (One Way ANOVA, not reported here).

The breakdown of the total score, on the basis of the partial scores obtained in the various categories into which the GRI is divided, is shown in Table 6. The average scores exceeding the threshold of 50% can be seen only for the categories "strategy" and "governance", while the scores are very low for the other categories. In particular, the score is zero for human rights, and the average score is absolutely insufficient for environmental performance. The extremely low scores of certain categories of the GRI are in part due to the fact that most IMB social reports do not inspire to this Standard.

Table 6: SD scores for each category into which the GRI is split (Standard GRI level C)

Category/ location	Strategy	Governance	Financial performance	Environmental performance	Social Performance	*Of which labour*	*Of which humain rights*	*Of which society*	*Of which product responsibility*	Total GRI score
North-east	57,5%	65,0%	15,1%	2,4%	16,9%	*38,7%*	*0,0%*	*9,3%*	*16,2%*	27,5%
North-west	62,2%	65,3%	24,7%	5,1%	17,7%	*37,5%*	*0,0%*	*11,7%*	*17,2%*	30,8%
Middle	57,8%	73,1%	22,5%	4,5%	16,5%	*38,1%*	*0,0%*	*9,2%*	*15,6%*	29,7%
South and islands	61,2%	82,0%	27,7%	7,2%	20,0%	*43,7%*	*0,0%*	*9,3%*	*22,8%*	33,7%
Italy	59,4%	68,7%	21,2%	4,2%	17,4%	*38,7%*	*0,0%*	*10,0%*	*17,1%*	29,7%
Category weight	*0,216*	*0,096*	*0,144*	*0,168*	*0,376*	*0,088*	*0,056*	*0,128*	*0,104*	1

The last row contains the weights of each category. The weights are determined by the highest scores pre-assigned and indicated in Table 1.

Moreover, the GRI sub-category that appears most penalized is the environment. The banks are not considered particularly polluting – at least not directly – and it appears costly to set an energy accounting measuring the costs and benefits. However, it should be borne in mind that the banks may not be considered socially responsible if, through their typical activity, they finance more pollutant firms.

Financial and social-environmental performance

Table 7 shows the components, and the names allocated to them, with which the research synthesized financial and social-environmental performance.

The final rotated matrix shown by Table 7 does not include all the indicators described in the methodological section: some indicators were excluded because of very low commonality (less than 0.3, see: Haslem et al. 1992).

Note that the 31 indicators initially considered were reduced to 7 components, with great interpretative advantage.

Table 7: Pattern matrix with the components

Financial area	Components name			
Financial indicators	**Solvency**	**Riskiness**	**Cost intensity**	
Equity/gross loans to customers	0,962			
Equity/net loans to customers	0,959			
Equity/customer deposits	0,929			
Tier 1 capital/total assets	0,885			
Total assets/equity	-0,878			
(tier 1+2 capital)/total assets	0,797			
Bad debts/net loans to customers		0,942		
Net bad debts/equity		0,908		
Non-performing loans/ net loans to customers		0,872		
ROE		-0,660		
Net impairment losses on loans/gross loans to customers		-0,514		
Personnel expenses/operating income			0,834	
Operating income/total assets			-0,787	
Cost/income = operating costs/operating income			0,686	
Social-environmental area	Components name			
Social-environmental indicators	**Visibility**	**Respect for the environment**	**Pricing**	**Transparency**
Donations and sponsorship/number of bank members	0,939			
Economic value distributed to the community/total economic value	0,938			
Donations and sponsorship/operating income	0,899			
-(energy costs/number of employees$_{\text{i-th bank}}$ – average energy costs/number of employees in the bank sample)		0,928		
-(energy costs/total assets$_{\text{i-th bank}}$ – average energy costs/total assets in the bank sample)		0,921		
-(energy costs/number of branches$_{\text{i-th bank}}$ – average energy costs/number of branches in the bank sample)		0,863		
-(average interest rate on loans$_{\text{i-th bank}}$ - average interest rate on loans of bank sample)			0,837	
Directors, Auditors and manager compensation/total economic value			-0,614	
(average interest rate on deposits$_{\text{i-th bank}}$ - average interest rate on deposits of bank sample)			0,554	-0,316
Dummy variable: Number of members attending the membership meeting/total number of members				0,716
Dummy variable: Complaints received			-0,341	0,715
-(net fee and commission income/total assets$_{\text{i-th bank}}$ – average net fee and commission income/total assets in the bank sample)				0,538

Extraction method: principal component analysis for financial indicators and categorical component analysis for social-environmental indicators. Rotation method: Varimax. For the financial area, the components were extracted by principal components analysis, whereas for the social-environmental area, given the presence of categorical variables, the components were extracted by principal components categorical analysis. Bartlett's test of sphericity was conducted for both areas, with rejection of the null hypothesis. The factors loading matrix, for both areas, was orthogonally rotated with the Varimax method. The component number was not defined on the basis of the eigenvalues with a value greater than 1 but by the parallel analysis (Zwick & Velicer 1986). The components explained respectively 75.61 % and 70.71 % of the variance for the financial and social-environmental areas.

The components were named by considering the values assumed by factor loadings in the rotated matrices. In particular, (a) for the financial area, the first two components are of

immediate understanding, while the third component was called 'cost intensity' given the prevalence of cost ratios, with the exception of the relationship between operating income and total assets, which, however, assumed negative value; (b) for the social-environmental area, the first component was called 'visibility', given the prevalence of sponsorship and charitable donations to the community, the second and the third components are of immediate understanding, while the last component was called 'transparency' since it connected with the transparency of the relationship between members and mutual bank.

The components of the analysis outlined above were used as input variables to the cluster analysis, the aim of which was to identify groups of banks with behaviours homogeneous with respect to the components. Table 8 shows the average values of the components for each cluster obtained with the non-hierarchical k-medium method. The F-Test (ANOVA, not shown) revealed statistically significant differences among the clusters, with reference to the average of all the components used, with the exception of the component called 'transparency', which therefore seems not to discriminate membership of the banks in one of the three clusters.

Table 8: Average values of the components for the final cluster identified by banks

Components deriving from the principal components analysis	Cluster 1= neutral banks	Cluster 2 = risky banks	Cluster 3= socially responsible banks
Visibility	-0.360	-0.512	1.503
Environment respect	0.297	-0.050	0.765
Pricing	0.378	-0.935	-0.105
Transparency	-0.038	0.208	0.103
Solvibility	-0.236	0.009	0.640
Riskiness	-0.365	1.260	-0.256
Cost intensity	0.251	0.729	0.040

The results in the table were obtained with a non-hierarchical cluster analysis. The input data, represented by the principal components, were by definition standardized, and the correlation between the components of the financial area and the social-environmental area was zero. The number of clusters was obtained for attempts starting with 2 clusters and finishing with 5. The final number of clusters was chosen because it showed the highest value of the pseudo-f (Calinski & Harabasz 1974).

The cluster names have been chosen on the basis of the average values of final centers with respect to the standardized grouping variables represented by the principal components, bearing in mind that negative values indicate values below the global average of the grouping variables. 58% of the banks in the sample falls in the first cluster (neutral banks) while the remainder are equally distributed between the other two clusters.

Interestingly, there is no statistically significant difference among the average SD intensity scores associated with each of the three clusters of banks (F-Test Anova, not reported). In other words, the banks belonging to cluster number 3, i.e. "socially responsible banks" do not on average have SD intensity scores higher than those of the banks included in the other two clusters. This testifies to the absence of a relation, positive or negative, between financial and social-environmental performance and SD intensity. This absence of a relation is also confirmed by analysis of the correlation structure. Consider, in this regard, Table 9, which shows the

correlations among the components (solvency, riskiness, intensity of costs, visibility, respect for the environment, pricing and transparency) and the SD intensity scores, sub-divided into related categories.

Table 9: Correlation structure between the SD scores and the components of financial and social-environmental performance

	Size	Opertion structure	Visibility	Environment respect	Pricing	Transparency	Solvibility	Riskiness	Cost intensity	Strategy	Governance	Financial performace	Social/Environmental performance	Performance sociale	SD scores
Size	1														
Opertion structure	-.392**	1													
Visibility	.086	-.231	1												
Environment respect	-.095	-.236	0	1											
Pricing	.426**	-.372**	0	0	1										
Transparency	.346**	-.286*	0	0	0	1									
Solvibility	-.006	.125	.1	-.193	.012	.071	1								
Riskiness	-.218	.343**	-.166	-.066	-.480**	.047	0	1							
Cost intensity	-.121	-.206	-.022	-.011	-.023	.077	0	0	1						
Strategy	.538**	-.212	.05	-.223	-.011	.430**	.115	-.01	.028	1					
Governance	.172	.055	.107	-.242	-.277*	.282*	.085	.113	-.017	.549**	1				
Financial performace	.316*	-.149	.049	-.271	-.083	.421**	-.055	-.006	-.015	.670**	.600**	1			
Social-envirnmental performance	.155	-.018	-.156	-.289	-.112	.228	-.092	.122	.028	.525**	.613**	.662**	1		
Performance sociale	.285*	.013	-.116	-.164	-.08	.16	-.156	-.1	-.013	.717**	.434**	.648**	.700**	1	
SD scores	.375**	-.089	-.015	-.281	-.12	.373**	-.024	.015	.004	.859**	.739**	.865**	.822**	.859**	1

** , * indicate significance levels of respectively 1% and 5 %. The cells that cross the components deriving from both the financial area (solvency, riskiness and cost intensity) and from the social-environmental area (visibility, respect for the environment, pricing and transparency) are zero because, by Construction, the components are uncorrelated with each other.

Note that two control variables have been added in Table 9. They regard: 1) the firm's size synthesized from the natural logarithm of the total assets, and 2) the operational structure defined by the ratio between operating costs and total assets. Size appears to be a variable potentially able to explain the intensity of SD for several reasons. The first is that the cost of gathering the information to be published is higher for smaller firms (Singhvi & Desai 1971). A second reason relates to the fact that larger firms have greater opportunities to use formal information channels to better communicate their social activity (Brammer & Pavelin 2006).

In line with numerous empirical studies (Patten 1991; Cowen et al. 1987; Holder-Webb et al. 2008; Cho et al. 2009), inspection of Table 9 shows the presence of a positive and significant correlation between the SD intensity score and size.

On the other hand, the SD intensity score does not show any significant correlation with the financial area components. As regards the social-environmental area, the SD intensity score shows a statistically significant positive correlation only with the component 'transparency'. Moreover, transparency acts not only on the total SD intensity but also on most of its individual categories. All the other components of the social-environmental area (visibility, respect for the environment, and pricing) show no significant correlation with the SD intensity score.

The components described can also be used to determine the factorial scores separately for SD intensity and for both financial and social-environmental performance. By means of these factorial scores, a ranking of the banks can be defined for each of them. Table 11 in the appendix 1 contains this ranking. It clearly shows that banks with a good ranking relative to SD intensity do not occupy a position equally appropriate in terms of financial and social-environmental performance. Put otherwise, banks that fall within the "socially responsible banks" cluster record poor SD scores. This is in line with the finding by Lyon and Maxwell (2007) that companies with excellent reputations have low degrees of SD.

SUMMARY AND CONCLUSIONS

The aim of this study has been to test the extent to which the SD intensity score reflects the financial and social-environmental performance of a sample of IMBs.

The nature and the focus of this study are different from those of previous studies. The research reported differed both in the structure of the sample, which was characterized by IMBs, and in the issues relative to SD and financial and social-environmental performance. The literature in this regard has (i) concentrated on work related to commercial banks, and (ii) mainly considered the relationship between financial and social performance, and only marginally the relationship between SD intensity and social-environmental performance.

The research moved through two phases. In the first, by means of content analysis focused on social reports and management reports, an SD intensity score was constructed with respect to GRI guidelines (GRI, 2006 and 2008). In the second phase, through principal component analysis applied to a series of 12 indicators for the social-environmental area and 14 indicators for the financial area, seven components were extracted. These components were subsequently used (a) as inputs to a cluster analysis carried out to identify groups of banks in the sample homogeneous in terms of financial and social-environmental issues; (b) in analysis of correlations with the SD intensity score; c) to determine the factorial scores with which to build a bank ranking in the sample.

The analysis focused on a sample of 57 IMBs publishing social reports updated to 2010.

The empirical analysis highlighted, overall, an average SD intensity of less than 50% even in the presence of banks with excellent scores.

The dichotomy between the SD scores and the social performance can be interpreted in several ways. First, the structure of the social reports seems to follow a "positivist" motivation

(Deegan and Blomquist, 2006) with the objective to meet the expectations of the community rather than to give transparent information to all stakeholders. Second, IMBs do not show a sufficient awareness of the role played by the transparency as a critical factor of business success. Third, the standard itself, on which is based the compliance, do not completely favour the process of the emergence of effective social performance. Although the international GRI standards used here are very useful, they are far from the world of the IMBs and may excessively penalize them.

Overall, two considerations arise. The first, related to SD intensity, closely concerns the quality of social reports. Some categories – such as, for example, corporate identity, value added, membership and the community – show high levels of disclosure even if the information often seems to pursue more a logic of accumulation than of integration (Vezzani, 2012). For other categories, and above all for the environment, there is evident lack of a coherent and unitary plan: SD does not merely consist in saying that the bank concerns itself with energy saving or paper consumption. Some categories, moreover, are substantially ignored: improvement proposals and greater stakeholder involvement are not taken into consideration, and without them there can be no real stakeholder engagement.

The second consideration relates to actual social-environmental performance. From the empirical results obtained, this does not appear completely transfused into the degree of SD intensity, with the exception of transparency. This empirical result has a double value. On the one hand, from a theoretical point of view, it shows that it is incorrect to use SD as a proxy for CSP because the two concepts are divergent. On the other hand, it emphasises the need for social reports to be consistent with actual social performance in order to prevent them from being used by managers or advisers as image-building devices. In this regard, it is significant that only 57 of the first 200 IMBs issue social reports, even if all of them have a certain homogeneity of interest and of intent and share mutuality and democracy principles (Boscia and Di Salvo, 2009).

Finally, a certain caution must be used to interpret the results obtained for at least three reasons. The first is the structure of the sample itself, which only considers the IMBs: the results may not, therefore, be generalized. The second reason is related to the static nature of the sample that shows only a year: the compliance evolution is not taken into consideration. The third reason is related to the indicators used as proxies of the social performance. In this regard, since there is no uniqueness in literature in defining which and how many indicators must be used, the choice of these proxies was affected by the availability of public information. The solution of these issues represents a possible evolutionary path of the research.

REFERENCES

A.B.I. (2005). *Il rendiconto agli stakeholder. Una guida per le banche*. Roma: Bancaria Editrice.
A.B.I. (2003). *Il Bilancio Sociale nelle banche italiane*. Roma: Bancaria Editrice.

Abbott, W.F. & Monsen, R.J. (1979). On the measurement of corporate social responsibility: Self-reported disclosure as a method of measuring corporate social involvement. *Academy of Management Journal*, 22, 501-515.

Adams C.A., Hill, W.Y. & Roberts C.B. (1998). Corporate social reporting practices in Western Europe: legitimating corporate behavior. *British Accounting Review*, 30, 1-21.

Adams, C.A. (2002). Internal organizational factors influencing corporate social and ethical reporting. *Accounting, Auditing & Accountability Journal*, 15, 223-250.

Aguilera, R. & Cuervo-Cazura, A. (2004). Codes of good governance worldwide: what is the trigger?. *Organizations Studies*, 25(3), 417-446.

Ayadi, R., Schmidt, H.R. & Carlò Valverde, S. (2010). Investigating diversity in the banking sector in Europe. The performance and role of saving banks. *Center for European Policy Studies*, Brussels.

Baldarelli, M.G. & Gigli, S. (2011). Exploring the drivers of corporate reputation integrated with a corporate responsibility perspective: some reflections in theory and in praxis. *Journal of Management and Governance*, Doi 10.1007/s10997-011-9191-3.

Barney, J.B. (2001). Is the Resource-Based "View" a Useful Perspective for Strategic Management Research? Yes. *Academy of Management Review*, 26(1), 41-56.

Blacconiere, W.G. & Northcut, W.D. (1997). Environmental information and market reactions to environmental legislation. *Journal of Accounting and Finance*, 12, 49-78.

Blacconiere; W.G. & Patten, D.M. (1994). Environmental disclosures, regulatory costs, and changes in firm value. *Journal of Accounting and Economics*, 18, 357-377.

Boscia, V. & Di Salvo, R. (2009). The Theory and Experience of Cooperative Banking. In V. Boscia, A. Carretta & P. Schwizer, (eds.), *Cooperative Banking: Innovations and Developments*. Hampshire: Palgrave Macmillan Studies.

Bowen, H.R. (1953). *Social responsibilities of the businessman*. New York: Harper & Row.

Bowie, N.E. & Freeman, R.E. (1992). *Ethics and agency theory: an introduction*. New York: Oxford University Press.

Brammer, S. & Pavelin, S. (2006). Corporate social performance and stock returns: UK evidence from disaggregate measures. *Financial Management*, 35, 97-116.

Brown, N. & Deegan, C. (1998). The public disclosure of environmental performance informations: A dual test of media agenda setting theory and legitimacy theory. *Accounting and Business Research*, 29(1), 205-223.

Calinsky, T. & Harabasz, J. (1974). A dendrite method for cluster analysis. *Communications in Statistics-Theory and Methods*, 3, 1-27.

Callado-Munoz, F.J. & Utrero-Gonzales, N. (2009). Does it pay to be socially responsible? Evidence from Spains' retail banking sector. *European financial Management*, 17(4), 755-787.

Campbell, D. (2004). A longitudinal and cross-sectional analysis of environmental disclosure in UK companies-a research note. *British Accounting Review*, 36, 107-117.

Campbell, D. & Slack, R. (2011). Environmental disclosure and environmental risk: skeptical attitudes of UK sell-side bank analyst. *British Accounting Review*, 43(1), 54-64.

Cardillo, E. & Molina, S. (2011). IAS-IFRS e rendicontazione socio-ambientale: una verifica della estendibilità dei principi generali del Framework alla valutazione della qualità dei documenti volontari. *Financial Reporting*, 1.

Carrol, A.B. (1999). Corporate social responsibility-evolution of a definitional construct. *Business Society*, 38(3), 268-295.

Cho, C.H., Roberts, R.W. & Patten, D.M. (2009). The language of U.S. corporate environmental disclosure. *Accounting, Organizations and Society*, doi:10.1016/j.aos.2009.

Cochran, P.L. & Wodd, R.A. (1984). Corporate social responsibility and financial performance. *Academy of Management Journal*, Vol. 27(1), 1984, pp. 42-56.

Contrafatto, M. (2009). *Il social environmental reporting e le sue motivazioni: teoria analisi empirica e prospettive*. Milano: Giuffrè Editore.

Contrafatto, M. & Rusconi, G. (2005). Social Accounting in Italy: origins and developments. *Social and Environmental Accounting Journal*, 25(2), 3-8.

Cowen, S.S., Ferreri, L.B. & Parker, L.D. (1987). The impact of corporate characteristics on social responsibility disclosure: a typology and frequency based-analysis. *Accounting, Organizations and Society*, 12, 111-122.

Cuesta-Gonzàles, M., Munoz-Torres, M.J. & Fernandez-Izquierdo, M.A. (2006). Analysis of Social Performance in the Spanish Financial Industry Through Public Data. A Proposal. *Journal of Business Ethics*, 69, 289-304.

Davidson, W.N. & Worrell, D.L. (1990). A Comparison and Test of the Use of Accounting and Stock Market in Relating Corporate Social Responsibility and Financial Performance. *Akron Business and Economic Review*, 21, 7-19.

Deegan C. & Blomquist C., (2006), Stakeholder influence on corporate reporting: an exploration of the interaction between WWF-Australia and the Australian minerals industry, in *Accounting, Organizations and Society,* Vol. 31(4-5).

Deegan, C. & Unerman, J. (2006). *Financial Accounting Theory*. Maidenhead: McGraw-Hill.

Deegan, C., Rankin, M. & Tobin, J. (2002). An examination of the corporate social and environmental disclosures of BHP from 1983-1997: A test of legitimacy theory. *Accounting, Auditing and Accountability Journal*, 2, 27-41.

E.A.C.B. (2010). *European co-operative banks in the financial and economic turmoil*. Brussels.

Edwards, M. & Hulme, D. (1996). Too close for comfort? The impact of official aid on non-governmental organizations. *World Development*, 24, 961-974.

Freedman, M. & Wasley, C. (1990). The Association Between Environmental Performance and Environmental Disclosure in Annual Reports and 10-Ks. *Advances in Public Interest Accounting*, 3, 183-193.

Freedman, M. & Jaggi, B. (1986). An analysis of the impact of corporate pollution disclosures included in annual financial statements on investors' decisions. *Advances in Public Interest Accounting*, 1, 192-212.

Freedman, M. & Stagliano, A. J. (1991). Differences in social-cost disclosures: a market test of investor reactions. *Accounting, Auditing and Accountability Journal*, 4, 68-83.

Freeman, R. (1984). *Strategic Management: A Stakeholder Approach*. Boston: Pitman.

Gamerschlag, R., Moller, K. & Verbeeten, F. (2010). Determinants of voluntary CSR disclosure: empirical evidence from Germany. *Corporate Social Responsibility and Environmental Management*, 14, 274-288.

Garriga, E. & Melé, D. (2004). Corporate Social Responsibility Theories: Mapping the Territory. *Journal of Business Ethics*, 53(1-2), 51-71.

Global Reporting Initiative (2006). *G3 Guidelines*. Amsterdam.

Global Reporting Initiative (2008). *Sustainability Reporting Guidelines & Financial Services Sector Supplement*. Amsterdam.

Global Reporting Initiative (2011). *G3.1 Guidelines*. Amsterdam.

Gray, R, Kouhy, R. & Lavers, S. (1995). Corporate Social and Environmental areporting: A review of the Literature and a Longitudinal Study of UK Disclosure. *Accounting, Auditing and Accountability Journal*, 8, 47-77.

Gray, R. (2002). The Social Accounting Project and Accounting Organization and Society: Privileging Engagement, Imaginings, New Accountings and pragmatism over Critique. *Accounting Organizations and Society*, 27(7).

Gray, R., Owen, D. & Adams, C. (1996). *Accounting and Accountability: changes and challenges in corporate social and environmental reporting*. Hemel Hempstead: Prentice Hall International.

Gray, R., Owen, D. & Maunders, K. (1987). Researching the information content of social responsibility disclosure: a comment. *British Accounting Review*, 8, 47-77.

Griffin, J.J. & Mahon, J.F. (1997). The Corporate Social Performance and Corporate Financial Performance Debate: Twenty-Five Years of Incomparable Research. *Business and Society*, 36, 5-31.

Groeneveld, J.M. & De Vries, B. (2009). European Cooperative banks: First lessons of the subprime crisis. *The International Journal of Cooperative Management*, 4(2), 8-21.

Guthrie, J., & Parker, L.D. (1990). Corporate social disclosure practice: a comparative international analysis. *Advances in Public Interest Accounting*, 3(2).

Haslem, J.A., Scheraa, C.A. & Bedinfield, J.P. (1992). An analysis of the foreign and domestic balance sheet strategies of US banks and their association to profitability performance. *Management International Review*, 32, 55-75.

Holder-Webb, L., Cohen, J.R., Nath, L. & Wood, D. (2008). The supply of corporate social responsibility disclosures among U.S. firms. *Journal of Business Ethics*, 84(4), 497-527.

Hooghiemstra, R. (2000). Corporate Communication and Impression Management. New Perspectives Why Companies Engage in Corporate Social Reporting. *Journal of Business Ethics*, Vol. 27(1), 55-68.

Hossain, M. & Reaz, M. (2007). The Determinants and Characteristics of Voluntary Disclosure by Indian Banking Companies. *Corporate Social Responsibility and Environmental Management*, 14, 274-288.

Igalens, J. & Gond, J.P. (2005). Measuring corporate social performance in France: a critical and empirical analysis of ARESE data. *Journal of Business Ethics*, 56, 131-148.

Jackson, P.M. (1982). *The Political Economy of Bureaucracy*. Oxford: Philip Allan.

Kandel, E. & Lazear, E.P. (1992). Peer Pressure and Partnerships. *Journal of Political Economy*, 100(4), 801-817.

Kolk, A. (2005). Environmental reporting by multinationals from the Triad: convergence or divergence. *Management International Review*, 45(1), 145-167.

Krippendorff, K. (2004). *Content Analysis: an introduction to its methodology*. London: Sage Publications.

Lattin, J., Carrol, J.D. & Green, P.E. (2003). *Analyzing Multivariate Data*. Belmont: Brooks/Cole.

LINDBLOM C.K. (1994) The implications of organizational legitimacy for corporate social performance and disclosure, Paper presented at the Critical Perspectives on Accounting Conference, New York.

Lyon, T.P. & Maxwell, J.W. (2007). Corporate Social Responsibility and the environment: a theoretical perspective. Working Paper Series, http://ssrn.com/abstract=1011793.

Mahon, J. & Wortick, S.L. (2012). Corporate social profiling: using multiple stakeholders perception to asses a corporate reputation. *Journal of Public Affairs*, 12(1), 18-28.

Mahoney, L. & Roberts, R.W. (2004). Corporate social performance: empirical evidence on Canadian firms. *Research on Professional Responsibility and Ethics in Accounting*, 9, 73-99.

Marx, T.G. (1993). Corporate Social Performance reporting. *Public Relations Quarterly*, 37(4), 38-44.

McWilliams, A. & Siegel, D. (2000). Corporate social responsibility and financial performance: correlation or misspecification?, *Strategic Management Journal*, 21(5), 603-609.

Meznar, M.B., Nigh, D. & Kwok, C.C.Y. (1994). Effect of announcements of withdrawal from South Africa on stockholder wealth. *Academy of Management Review*, 37, 1633-1648.

Mio, C. (2010). Corporate Social Reporting in Italian Multi-utility Companies: An Empirical Analysis. *Corporate Social Responsibility and Environmental Management*, 17, 247-271.

Mishina, Y., Bloch, E.S. & Mannor, M.J. (1997). The path dependence of organizational reputation: how social judgment influences assessments of capability and character. *Strategic Management Journal*, 33(5), 459-477.

Morhardt, J.E., Baird, S. & Freeman, K. (2002). Scoring Corporate Environmental and Substainability Reports Using GRI 2000, ISO 14031 and Other Criteria. *Corporate Social Responsibility and Environmental Management*, 9, 215-233.

Ness, K.E. & Mirza, A.M. (1991). Corporate social disclosure: A note on a test of agency theory. *British Accounting Review*, 23, 27-41.

Neu, D., Warsame, H. & Pedwell, K. (1998). Managing Public Impressions: Environmental Disclosures in Annual Reports. *Accounting, Organisations, and Society*, 23(3), 265-282.

Neuendorf, K.A. (2002). *The content analysis guidebook*. London: Sage Publications.

O'Donovan, G. (1997). Legitimacy Theory and Corporate Environmental Disclosure: Some Case Study Evidence. Paper presented at 1997 Accounting Association of Australia and New Zeland Annual Conference, Hobart.

O'Neill, H.M., Saunders, C.B. & McCarthy, A.D. (1989). Board members, corporate social responsiveness and profitability: Are tradeoffs necessary?. *Journal of Business Ethics*, 8, 353-357.

Ogden, S. & Watson, R. (1999). Corporate performance and stakeholder management: Balancing shareholder and customer interest in the UK privatized water industry. *Academy of Management Journal*, 42, 526-538.

Orlitzky, M., Schmidt, F.L. & Rynes, S.L. (2003). Corporate social and financial performance: a meta-analysis. *Organization Studies*, 24(3), 403-441.

Patten, D.M. (1991). Exposure, legitimacy, and Social Disclosure. *Journal of Accounting and Public Policy*, 10(4), 297-308.

Preston, L.E. (1978). Analyzing corporate social performance: methods and results. *Journal of Contemporary Business*, 7, 135-150.

Rahaman, A.S, Lawrence, S. & Roper, J. (2004). Social and Environmental Reporting at the VRA: Institutional legitimacy or legitimation crisis?. *Critical Perspectives on Accounting*, 15, 35-56.

Roberts, R.W. (1992). Determinants of corporate social responsibility disclosure. *Accounting, Organizations and Society*, 17, 595-612.

Ruf, B., Muralidhar, K. & Paul, K. (1998). The Development of a Systematic, Aggregate Measure of Corporate Social Performance. *Journal of Management*, 24(1), 119-133.

Russo, M.V. & Fouts, P.A. (1997). A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal*, 40, 534-559.

Secchi, D. (2006). The Italian Experience in Social Reporting: An Empirical Analysis. *Corporate Social Responsibility and Environmental Management*, 13, 135-149.

Shane, P.B. & Spicer, B.H. (1983). Market response to environmental information produced outside the firm. *Accounting Review*, 58, 521-538.

Signori S. & Rusconi, G. (2009). Ethical Thinking in Traditional Italian Economia Aziendale and the Stakeholder Management Theory: the Search for possible interactions. *Journal of Business Ethics*, 89(3), 303-318.

Simerly, R.L. (2003). Empirical Examination of the relationship between management and corporate social performance. *International Journal of Management*, 20(3), 353-359.

Simpson, W.G. & Kohers, T. (2002). The Link Between Corporate Social and Financial Performance: Evidence From the Banking Industry. *Journal of Business Ethics*, 35, 97-109.

Singhvi, S.S. & Desai, H. B. (1971). An empirical analysis of quality of corporate financial disclosure. *The Accounting Review*, January, 129-138.

Soana, M.G. (2011). The Relationship Between Corporate Social Performance and Corporate Financial Performance in the Banking Sector. *Journal of Business Ethics*, 104, 133-148.

Stanwick, P.A. & Stanwick, S.D. (1998). The relationship between corporate social performance and organizational size financial performance, environmental performance: An empirical examination. *Journal of Business Ethics*, 17, 195-204.

Tichy, N.M., Mcgrill, A.R. & St. Clair, L. (1997). An agenda for corporate global citizenship. In *Corporate global citizenship: Doing business in the public eye*, (pp 1-22), San Francisco: New Lexington Press.

Tilt, C.A. (1994). The influence of external pressure groups on corporate social disclosure. *Accounting, Auditing & Accountability Journal*, 7, 47-72.

Trotman, K.T. & Bradley, G.W. (1981). Association between social responsibility disclosure and characteristics of companies. *Accounting, Organizations and Society*, 6, 355-362.

Turban, D.B. & Greening, D.W. (1997). Corporate social performance and organizational attractiveness to prospective Employee. *Accademy of Management Journal*, 40(3).

Ullmann, A. (1985). Data in search of a theory: A critical examination of the relationship among social performance social disclosure, and economic performance. *Academy of Management Review*, 10, 540-577.

Unerman, J. (1999). Methodologiacl Issues. Reflections on quantification in coporare social reporting content analysis. *Accounting, Auditing & Accountability Journal*, 13(5), 667-680.

Van De Velde, E., Vermeir, W. & Corten, F. (2005). Finance and accounting: Corporate social responsibility and financial performance. *Corporate Governance*, 5, 129-138.

Van Riel, C.B.M. (1995). *Principles of Corporate Communication*. London: Prentice Hall.

Vezzani, P. (2012). I bilanci sociali. In M. Di Antonio (eds.), *I sistemi di stakeholders management nelle banche italiane*. Roma: Bancaria Editrice.

Vitell, S.J. & Hidalgo, E.R. (2006). The impact of Corporate Ethical Values and Enforcement of Ethical Codes on the Perceived Importance of Ethics in Business: A comparison of U.S. and Spanish Managers. *Journal of Business Ethics*, 64, 31-43.

Waddock, S.A. & Graves, S.B. (1997). The corporate social performance-financial performance link. *Strategic Management Journal*, 18(4), 303-319.

Willis, A. (2003). The Role of Global Reporting Initiatives Sustainability Reporting Guidelines in the Social Screening of Investments. *Journal of Business Ethics*, 43, 233-237.

Wiseman, J. (1982). An Evaluation of Environmental Disclosures Made in Corporate Annual Reports. *Accounting, Organizations and Society*, 7(1), 53-63.

Wood, D.J. (2010). Measuring Corporate Social Performance: A Review. *International Journal of Management Review*, DOI: 10.1111/j.1468-2370.2009.00274.x,50-84.

Zwick, W., Velicer, R. & Wayne, F. (1986). Comparison of five rules for determining the number of components to retain. *Psychological Bulletin*, 99(3), 432-442.

APPENDIX 1

Table 10: SD intensity score for each bank in the sample							
Mutual bank's name	**Total score GRI**	**Mutual bank's name**	**Total score GRI**	**Mutual bank's name**	**Total score GRI**	**Mutual bank's name**	**Total score GRI**
Treviglio	50,40%	Trevigiano	52,00%	Castenaso	24,80%	Mantignana	25,60%
Covo	28,80%	sant Elena	31,20%	Centromarca	25,60%	Masiano	31,20%
Garda	50,40%	San Giorgio	31,20%	Staranzano	28,80%	Abruzzese	23,20%
Sesto	32,00%	Rovereto	31,20%	Vicentino	19,20%	San Giovanni	33,60%
Carate	29,60%	Reggiana	22,40%	Vallagarina	19,20%	Pontassieve	30,40%
Cantù	33,60%	Laudense	33,60%	Cras	23,20%	San Marzano	58,40%
Monastir	32,80%	Forlì	31,20%	Pratola	26,40%	Boves	20,00%
Brescia	28,80%	Binasco	32,80%	Cavola	24,00%	Reggiana	25,60%
Caraglio	28,80%	Roma	37,60%	Basiliano	22,40%	Toniolo	31,20%
Inzago	31,20%	Gradara	32,80%	Polesine	22,40%	Tuscolo	18,40%
Bedizzole	32,00%	Filottrano	35,20%	Udine	19,20%	Sangro	32,00%
Sebino	24,80%	Piove	28,00%	Romano	20,80%	Borghetto	23,20%
Centropadana	23,20%	Vignole	29,60%	Pescia	29,60%		
Cru Trento	32,80%	Anghiari	28,80%	Don Rizzo	28,80%		
Brendola	25,60%	Cartura	29,60%	Impruneta	32,00%		
The table has been compiled from the scores reported in appendix 2 applied to the social reports of 57 IMBs.							

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Table 11: Ranking of the banks in the sample on the basis of SD intensity score and social-environmental and financial performance								
	SD intensity ranking	Social-environmental area Ranking				Financial area Ranking		
Mutual banks's name	GRI	Visibility	Respect for the environment	Pricing	Transparency	Solvency	Riskiness	Cost intensity
San Marzano	1	52	48	53	55	46	4	13
Trevigiano	2	22	53	18	23	24	31	25
Treviglio	3	42	45	7	8	34	30	42
Garda	4	36	24	45	1	35	55	33
Roma	5	29	27	17	7	27	5	34
Filottrano	6	20	4	39	10	47	26	48
Cantù	7	10	57	2	19	6	19	37
Laudense	8	31	32	48	6	52	40	53
San Giovanni	9	3	30	52	13	2	49	54
Monastir	10	2	20	44	41	53	25	12
Cru Trento	11	27	28	4	5	32	29	36
Binasco	12	4	39	26	46	19	1	3
Gradara	13	1	3	28	22	45	7	24
Sesto	14	13	56	16	14	9	27	51
Bedizzole	15	26	52	46	3	20	50	30

Table 11: Ranking of the banks in the sample on the basis of SD intensity score and social-environmental and financial performance

	SD intensity ranking	Social-environmental area Ranking				Financial area Ranking		
Mutual banks's name	GRI	Visibility	Respect for the environment	Pricing	Transparency	Solvency	Riskiness	Cost intensity
Impruneta	16	55	34	57	4	26	46	41
Sangro	17	32	10	42	50	29	47	57
Inzago	18	41	42	20	11	7	35	1
sant Elena	19	37	9	30	2	13	33	56
San Giorgio	20	33	35	3	31	21	41	38
Rovereto	21	11	25	12	40	51	38	47
Forlì	22	45	38	15	26	37	45	7
Masiano	23	21	18	50	47	18	48	4
Toniolo	24	25	47	27	25	28	36	43
Pontassieve	25	7	54	41	21	25	28	11
Carate	26	5	50	9	33	14	3	32
Vignole	27	17	21	49	9	40	34	8
Cartura	28	51	31	33	15	5	21	40
Pescia	29	49	40	25	20	23	24	28
Covo	30	53	23	13	30	11	22	44
Brescia	31	56	43	29	37	17	8	29
Caraglio	32	18	2	14	12	48	9	21
Anghiari	33	35	41	56	24	50	57	2
Staranzano	34	44	22	32	29	3	11	22
Don Rizzo	35	54	36	40	56	4	56	5
Piove	36	16	46	37	44	54	43	31
Pratola	37	6	1	47	27	16	32	15
Brendola	38	24	26	10	32	33	39	18
Centromarca	39	19	13	19	38	22	13	46
Mantignana	40	57	55	43	51	55	10	52
Reggiana	41	38	7	35	42	41	15	14
Sebino	42	9	51	31	18	1	17	20
Castenaso	43	39	14	24	43	42	52	9
Cavola	44	48	15	34	17	57	12	23
Centropadana	45	30	12	23	35	8	37	27
Cras	46	46	37	54	52	39	53	10
Abruzzese	47	40	44	38	53	30	44	16
Borghetto	48	23	8	36	34	38	16	35
Reggiana	49	28	19	1	48	31	14	50
Basiliano	50	50	11	22	36	10	18	6
Polesine	51	34	29	51	16	36	51	39
Romano	52	43	33	5	54	56	42	19
Boves	53	14	5	21	45	12	6	49

Table 11: Ranking of the banks in the sample on the basis of SD intensity score and social-environmental and financial performance

	SD intensity ranking	Social-environmental area Ranking				Financial area Ranking		
Mutual banks's name	GRI	Visibility	Respect for the environment	Pricing	Transparency	Solvency	Riskiness	Cost intensity
Vicentino	54	15	16	6	39	49	20	45
Vallagarina	55	12	6	11	28	43	23	17
Udine	56	47	17	8	49	44	2	26
Tuscolo	57	8	49	55	57	15	54	55

APPENDIX 2

Type	Scores	STANDARD GRI (2006)	Type	Scores	STANDARD GRI (2006)
	27	STRATEGY, REPORT PARAMETERS AND ORGANIZATIONAL PROFILE	QN	1	FSSS Commentary added to specify primary types of waste streams being paper and waste It for financial institutions
QL	3	1.STRATEGY AND ANALISYS	QN	1	EN23.
	12	2. ORGANIZATIONAL PROFILE	QL	3	EN26
QN	1	2.1	QN	1	EN27.
QN	1	2.2.	QN	1	EN28
QN	1	2.3.		47	SOCIAL PERFORMANCE INDICATORS
QN	1	2.4.		11	LABOUR PRACTICES
QN	1	2.5.	QN	1	LA1
QN	1	2.6.	QN	1	LA2
QN	1	2.7	QN	1	LA4.
QN	1	2.8	QN	1	LA5.
QL	3	2.9:	QN	1	LA7.
QN	1	2.10.	QL	3	LA8
	12	3. REPORT PARAMETERS	QN	1	LA10.
QN	1	3.1	QN	1	LA13.
QN	1	3.2	QN	1	LA14.
QN	1	3.3		7	HUMAIN RIGHTS
QN	1	3.4	QN	1	HR1
QL	3	3.5	QN	1	FSSS Commentary added to report on investment agreements for the financial services
QN	1	3.6	QN	1	HR2
QN	1	3.7	QN	1	HR4
QN	1	3.8	QN	1	HR5

APPENDIX 2					
Type	**Scores**	**STANDARD GRI (2006)**	**Type**	**Scores**	**STANDARD GRI (2006)**
QN	1	3.9	QN	1	HR6
QN	1	3.10 and 3.11	QN	1	HR7
	12	GOVERNANCE, COMMITMENTS AND ENGAGEMENT		16	SOCIETY
QL	3	4.1	QL	3	SO1 Nature, scope, and effectiveness of any programs and practices that assess and manage the impacts of operations on communities, including entering, operating, and exiting.
QN	1	4.2	QN	1	FS13 Acces points in low-populated or economically disadvataged areas by type
QN	1	4.3	QL	3	FS14 Initiatives to improve access to financial services for disadavantaged people
QL	3	4.4	QN	1	SO2
QN	1	4.14	QN	1	SO3
QL	3	4.15	QL	3	SO4
	18	ECONOMIC PERFORMANCE INDICATORS	QL	3	SO5.
QL	3	EC1	QN	1	SO8
QN	1	FSSS Commentary added to the value generated by the organization's community …		13	PRODUCT RESPONSIBILITY
QL	3	EC2	QL	3	PR1
QN	1	EC3	QL	3	PR3
QN	*1*	*EC5*	*QL*	*3*	FS16
QL	3	EC6	QL	3	PR6
QL	3	EC7	QN	1	PR9
QL	3	EC8		125	TOTALE
	21	ENVIRONMENTAL PERFORMANCE INDICATORS			
QN	1	EN1			
QN	1	EN2			
QN	1	EN3			
QN	1	EN4			

APPENDIX 2					
Type	**Scores**	**STANDARD GRI (2006)**	**Type**	**Scores**	**STANDARD GRI (2006)**
QN	1	EN8			
QN	1	EN11			
QN	1	EN12			
QN	1	EN16			
QN	1	FSSS Commentary added to invite reporting on greenhouse gas emissions relating to business travel			
QN	1	EN17			
QN	1	EN19.			
QN	1	EN20			
QN	1	EN21			
QN	1	EN22			

QL stands for qualitative items and QN stands for quantitative ones.
Items and related assigned scores. GRI guidelines (2006), level C, integrated with Financial Services Sector Supplement (FSSS) 2008. Categories are identified by bold capital letters; sub-categories are identified by capital letters; and items are in italics. To save space, only the headlines have been reported.

DETERMINANTS OF RISK MANAGEMENT COMMITTEE FORMATION: AN ANALYSIS OF PUBLICLY-HELD FIRMS

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ABSTRACT

This study examines empirically the determinants of risk management committee formation in the Malaysian corporate environment. The analyses, from a sample of 796 publicly-held firms, suggest that risk management committee is positively associated with board size, outside directorships, company size and leverage. This study further investigates the association between such determinants and the different types of risk management committee structures. The results indicate that board size is positively associated with separate risk management committee, while, outside directorships is positively associated with combined risk management committee.

INTRODUCTION

The role of board of directors in risk oversight has begun to catch the attention of market participants following the reform of corporate governance in early 2000s. One of the responses to this growing expectation is the embrace of enterprise risk management (ERM) to enhance board's ability and effectiveness to oversee the portfolio of company risks in a robust way. Several corporate governance codes and guidelines such as The Combined Code (2008) further suggest that the use of board committees may be the most effective way to assist boards in discharging their risk oversight responsibility. Following this, risk management committee is emerging as one of the important board-level monitoring committees in most leading companies.

This newly evolving committee has the responsibility for reviewing risk management strategies, policies and measurement methodologies; identifying and managing of strategic business risk across the company as well as ensuring the adequacy and functionality of the risk management system (IRM, AIRMIC & Alarm, 2002). Several risk management committee structures have been adopted by market players starting with the audit committee structure (known as audit and risk management committee) to the separate board-level risk management committee (Brown, Steen & Foreman, 2009).

A large number of prior studies in the West have explored the influence of board structures and company characteristics on the implementation of ERM and the formation of

various monitoring committees. No study to date, however, has investigated the development and structure of risk management committees in developing market. Thus, this study seeks to fill a gap in risk management research by analyzing the factors associated with the formation of risk management committees, in terms of board and company attributes.

This study contributes to the extant literature by providing initial exploratory empirical evidence on risk management committees in developing countries where the adoption is still voluntary. The analyses, from a sample of 796 publicly-held firms, suggest that risk management committee is positively associated with board size, outside directorships, company size and leverage. The results also indicate that board size is positively associated with separate risk management committee, while outside directorships is positively associated with combined risk management committee.

HYPOTHESES

Presence of Independent Directors

According to Fama and Jensen (1983), independent directors have incentive to maintain and enhance their reputational capital by increasing the quality of monitoring. They are expected to prefer comprehensive risk management structure in order to complement their monitoring responsibilities. Also, independent directors have no economic or social ties to the company and its management. They are free of any economic conflicts of interest. This enables them to question management's decisions more actively (Anderson & Reeb, 2004). Accordingly, the following set of hypotheses is made:

H1(a) The proportion of independent directors on the board is positively associated with the existence of a risk management committee.

H1(b) The proportion of independent directors on the board is positively associated with the existence of a separate risk management committee.

CEO Duality

An independent Chairman is seen to be more vigilant and conscientious in executing board monitoring function with the intention of protecting his personal reputation in business community (Fama & Jensen, 1983). Pagach and Warr (2008) discover that ERM has become a control mechanism implemented by the board to offset the risk taking incentive of the CEO. A risk management committee thus provides independent Chairman a greater focus and capacity to better assess and manage potential risks that may attack the company. The following set of hypotheses is made:

H2(a) The use of an independent Chairman on the board is positively associated with the existence of a risk management committee.

H2(b) The use of an independent Chairman on the board is positively associated with the existence of a separate risk management committee.

Board Size

"Large boards are likely to resist managerial domination and present shareholders interest. These boards will be more actively in monitoring and evaluating CEO and company performance, normally through specialized committees" (Zahra & Pearce, 1989, p. 309). Hayes et al. (2004) assert that companies with larger boards have more committees and committee functions. Carson (2002) finds a positive relationship between board size the establishment of monitoring committees. Thus, the following set of hypotheses is proposed:

H3(a) Board size is positively associated with the existence of a risk management committee.

H3(b) Board size is positively associated with the existence of a separate risk management committee.

Board Directorships

Independent directors who join multiple boards are motivated to perform better in their oversight responsibility to signal to outsider that they are decision making experts (Fama & Jensen, 1983). They are more likely to invest their effort in the monitoring and advising of management (Carpenter & Westphal, 2001; Ferris et al., 2003). Also, this group of experts possesses strategic information and knowledge that enhance their sensitivity and responsiveness to changes in economic environment (Carpenter & Westphal, 2001). They can then take strategic actions to avoid or minimize the negative impact of hazards and volatility – that is, for risk management. The following set of hypotheses is therefore proposed:

H4(a) The number of directorships held by independent directors on the board is positively associated with the existence of a risk management committee.

H4(b) The number of directorships held by independent directors on the board is positively associated with the existence of a separate risk management committee.

Board Meeting

An active board demonstrates higher level of diligence in performing its watchdog role (Brick & Chidambaran, 2007). Since a diligent board has complete understanding of the intricacies of the company, therefore, it has greater capacity to cope with critical risk issues (Byrne, 1996). Harrison (1987) suggests that, from a director liability standpoint, directors can protect themselves by ensuring the board is meeting regularly to discuss, debate and compromise to the final strategic decision. This line of argument suggests the following set of hypotheses:

H5(a) The number of board meetings attended by directors on the board is positively associated with the existence of a risk management committee.

H5(b) The number of board meetings attended by directors on the board is positively associated with the existence of a separate risk management committee.

Directors with Accounting/Finance Expertise

Directors with accounting or financial knowledge and expertise are fully aware of key activities related to financial and operational performance in their daily management of the company's finances (Beasley, Branson & Hancock, 2008). This understanding facilitates the tasks of risk identification and risk assessment, which leads to improved risk management system. Xie et al. (2003) report that earnings management occurs less often in companies that have higher percentage of financially knowledgeable board members. In Agrawal and Chadha's (2005) study, board financial expertise as one of the proxies of effective corporate governance mechanisms, is found to be significantly lowered the incident of fraud. Hence, the following set of hypotheses is to be tested:

H6(a) The proportion of directors on the board with accounting or finance knowledge and experience is positively associated with the existence of a risk management committee.

H6(b) The proportion of directors on the board with accounting or finance knowledge and experience is positively associated with the existence of a separate risk management committee.

Company Size

Large companies are exposed to higher level of reporting risk, political risk, export risk and geographical risk resulting from its expanded business (Kleffner et al., 2003; Desender, 2007). Thus, organizational complexity of large companies signifies greater need for more comprehensive and effective risk management strategy. Yazid et al. (2008) argue that significant foreign currency receivables exposure remains one of the reasons for large companies to involve in risk management. A survey by PwC (2008) finds that risk management maturity level is higher in large companies. The following set of hypotheses is made.

H7(a) Company size is positively associated with the existence of a risk management committee.

H7(b) Company size is positively associated with the existence of a separate risk management committee.

Leverage

Meulbroek (2005) asserts that high leverage comes with higher risk. Andersen (2005) suggests the use of risk management practices to mitigate the risk of bankruptcy. Also, prior research suggests that leverage complements other governance constructs. Carson (2002) discovers the presence of nominating committee in the Australian corporate environment is highly associated with company leverage. New Zealand's life insurance companies with greater leverage are likely to form an audit committee (Adams, 1997). Accordingly, the following set of hypotheses is proposed:

H8(a) Leverage is positively associated with the existence of a risk management committee.

H8(b) Leverage is positively associated with the existence of a separate risk management committee.

Type of Auditor

The increased litigation risk of auditors is an increasing tendency for large audit firms to exert greater pressure on good governance mechanisms (Lee et al., 2003; Li et al., 2005), especially in the area of risk management. The trend can be seen from results of prior studies which have recognized the presence of large audit firms as one of the determinants of ERM embracement (Beasley et al., 2005; Desender, 2007). Also, Lee et al. (2003) argue that the probability of auditor litigation risk increases in the level of company risk and hence higher risk companies will tend to choose higher quality auditors. The following set of hypotheses is proposed:

H9(a) *The use of Big 4 auditors is positively associated with the existence of a risk management committee.*

H9(b) *The use of Big 4 auditors is positively associated with the existence of a separate risk management committee.*

RESEARCH METHOD

Sample

The sample consists of all companies listed on Malaysia's Main Market in 2009, except for companies belong to the financial industry as they are subject to a different regulatory environment. The final sample consists of 796 companies. This set of final sample is used in testing Model 1 as illustrated in the next section. While, for Model 2, a total of 223 companies which have formed a risk management committee are extracted from the same sample set used in Model 1.

Model Specification

To test the nine sets of hypothesis, this study used the following logistic regression model:

(Model 1)

$$RMC = \alpha + \beta_1(INDDIR) + \beta_2(INDCHAIR) + \beta_3(BRDSIZE) + \beta_4(DIRSHIP) + \beta_5(MEETING) + \beta_6(EXPERT) + \beta_7(SIZE) + \beta_8(LEV) + \beta_9(BIG4) + \beta_{10}(SUBSI) + \beta_{11}(RECINV)$$

(Model 2)

$$SRMC = \alpha + \beta_1(INDDIR) + \beta_2(INDCHAIR) + \beta_3(BRDSIZE) + \beta_4(DIRSHIP) + \beta_5(MEETING) + \beta_6(EXPERT) + \beta_7(SIZE) + \beta_8(LEV) + \beta_9(BIG4) + \beta_{10}(SUBSI) + \beta_{11}(RECINV)$$

RMC reflects a value of 1 if a risk management committee exists and 0 if otherwise. SRMC reflects a value of 1 if a separate risk management committee exists and 0 if a combined risk management committee exists. The percentage of board members who are independent is represented by the INDDIR variable. INDCHAIR is a dummy variable which represents whether or not the company has an independent chairman. BRDSIZE measures the number of directors on the board. DIRSHIP measures the average number of outside directorships held in other listed companies by independent directors. Number of board meeting annually is represented by the MEETING variable. The percentage of directors on the board with knowledge and experience in accounting and finance is represented by EXPERT. SIZE is measures by the fair value of total assets in a company. LEV was measured as the proportion of long-term debt to assets. A dummy variable, BIG4 reflecting whether the company has appointed one of the Big Four as external auditor. Two control variables are included to account for the companies' complexity. SUBSI measures the number of subsidiary companies in the group during the financial year. RECINV measures the proportion of receivable and inventory to total assets.

RESULTS

Descriptive Statistics

Table 1 presents the descriptive statistics for the variables used in the model. 28% of companies in the sample have a risk management committee, either a separate or combined one; and 72% do not. While, of the 223 companies that have a risk management committee, 71% have a separate risk management committee and 29% have a combined risk management committee. Only two of the sample companies not in compliance with Bursa Malaysia Main Market Listing Requirements (2009) that one-third of the board members should be independent. All sample companies appear to fulfill the requirement of the Companies Act, 1965 that a minimum of two directors for an incorporated company. On average, each independent director on the board holds one directorship in other companies (DIRSHIP). The average number of board of director meetings (MEETING) held during the financial year is five. The average proportion of directors on the board with knowledge or experience in accounting and finance (EXPERT) is 32%.

The fairly low average leverage ratio indicates that assets of most public listed companies are financed more through equity rather than debt. The mean of total assets (SIZE) is RM1,636,582,499, ranging from RM2,773,910 to RM199,425,000,000. 87% of sample companies have two different persons hold the position of chairman and CEO in the company and 13% still practice CEO duality. Also, 57% of the companies are audited by one of the Big 4 audit firms and 43% do not.

Table 1 **Descriptive Statistics**				
Variables	Min.	Max.	Mean	Std. Dev.
INDDIR	0.22	0.83	0.448	0.118
BRDSIZE	3	17	7.4	1.850
DIRSHIP	0	8	1.462	1.348
MEETING	1	27	5.38	2.076
EXPERT	0.059	1	0.316	0.146
SIZE (in RM million)	2.774	199,425	1,636.582	8,520.460
LEV	0	0.823	0.091	0.113
SUBSI	1	425	14.3	28.996
RECINV	0.001	0.999	0.286	0.183
	Yes	%	No	%
RMC	223	28	574	72
SRMC	158	71	65	29
INDCHAR	690	87	107	13
BIG4	457	57	340	43

Variable definitions: RMC = 1 if have a risk management committee, else 0. SRMC = 1 if have a separate risk management committee, 0 if have a combined risk management committee. INDDIR = Percentage of independent directors on the board. BRDSIZE = Total number of directors on the board. DIRSHIP = Average number of outside directorships held in other companies by independent directors on board. MEETING = Total number of board of director meetings held during the financial year. EXPERT = Percentage of directors on the board with accounting/financial knowledge and experience. SIZE = Total assets of the company at the end of the financial year. LEV = Ratio of total long-term debt to total assets. SUBSI = Total number of subsidiaries. RECINV = Proportion of receivable and inventory to total assets. INDCHAIR = 1 if have an independent chairman, else 0. BIG4 = 1 if have Big Four as external auditor, else 0.

Regression Results

The regression results for Model 1 are summarized in Table 2. The explanatory power of the model is significant (Model Chi-Square = 50.16, $p < 0.001$). The results suggest that several independent variables are associated with risk management committee formation. The significant positive association between board size and risk management committee formation suggests that large and diversified board is a competitive advantage for risk management functions, in terms of human capital, expertise and quality (Zahra & Pearce, 1989; Hayes et al., 2004). Independent directors who hold multiple directorships in other companies tend to have higher motivation to involve in risk oversight activities, as one way to build their reputation capital (Fama & Jensen, 1983; Carpenter & Westphal, 2001).

As company's size increases the scope of uncertainties, so does the need for higher level of risk monitoring. The positive relationship between firm size and risk management committee formation further substantiates the findings of Colquitt et al. (1999), Beasley et al. (2005) and Yazid et al. (2008). Another interesting finding is that higher leverage increases the likelihood of risk management committee formation. Apparently, greater level of credit risk and bankruptcy risk might induce companies to employ more comprehensive risk control function in the governance setting (Anderson, 2005; Meulbroek, 2005). Also, the results indicate that companies

with higher number of subsidiaries are more likely to form risk management committee as the nature, scale and intensity of risks increase when the company structures become more complex (Brown et al., 2009).

Table 2
Logistic regression results

Model 1: RMC existence (n = 796)					
	Exp. Sign	β	Wald	p-value*	Odds Ratio
INDDIR	+	0.18	0.06	0.811	1.20
INDCHAIR	+	-0.05	0.05	0.827	0.95
BRDSIZE	+	0.10	4.01	0.045	1.10
DIRSHIP	+	0.16	6.67	0.010	1,18
MEETING	+	0.02	0.24	0.624	1.02
EXPERT	+	0.67	1.35	0.246	1.96
SIZE	+	0.00	8.90	0.003	1.00
LEV	+	3.02	16.15	0.000	20.45
BIG4	+	0.24	1.87	0.171	1.27
SUBSI	+	0.01	11.07	0.001	1.01
RECINV	+	0.13	0.07	0.791	1.14
Constant		-2.83	16.51	0.000	0.06
Model χ^2 = 50.16, d.f. = 11, p = 0.000					
* Significant at 0.01 (one-tailed)					

The regression results for Model 2 are summarized in Table 3. The overall model is statistically significant (χ^2 (11) = 27.23, $p < 0.01$).

Table 3
Logistic regression results

Model 2: Separate RMC existence (n = 223)					
	Exp. Sign	β	Wald	p-value*	Odds Ratio
INDDIR	+	-0.74	0.29	0.592	0.48
INDCHAIR	+	-0.46	0.73	0.394	0.63
BRDSIZE	+	0.27	6.55	0.010	1.31
DIRSHIP	+	-0.38	11.29	0.001	0.69
MEETING	+	0.09	0.92	0.337	1.10
EXPERT	+	-0.24	0.05	0.822	0.79
SIZE	+	0.00	0.92	0.337	1.00
LEV	+	-1.49	1.34	0.247	0.23
BIG4	+	-0.03	0.01	0.930	0.97
SUBSI	+	0.00	0.38	0.540	1.00
RECINV	+	-1.26	1.52	0.218	0.28
Constant		0.49	0.12	0.731	1.62
Model χ^2 = 27.23, d.f. = 11, p = 0.004					
* Significant at 0.01 (one-tailed)					

Board size is found to be positively associated with separate risk management committee formation, suggesting that companies employ higher level of monitoring mechanism to mitigate the agency problem that can possibly occur with larger boards (Hayes et al., 2004). However, the negative association between board directorship and separate risk management committee imply that directors with multiple board appointments prefer to form combined RMC. Due to the time constraint and overextended issue, involvements in a combined risk management committee enable directors to serve less frequently on committee meetings and to discharge their risk oversight responsibility simultaneously (Young et al., 2003, Ferris et al., 2003; Perry & Peyer, 2005).

CONCLUSIONS

No study to date has investigated the adoption and structure of risk management committee in developing market. This study seeks to fill this gap in risk management research by systematically analyzing the determinants of risk management committee formation and its structure, from the perspective of various board and company attributes. Board attributes such as board size and outside directorships, as well as company attributes such as company size and leverage have shown linkage with risk management committee formation.

However, this study does have limitations. First, only those companies that have disclosed the existence of a risk management committee will be included in the study. It is possible to omit those companies that utilize other governance structures for managing their risks but not using the term of risk management committee. Second, this study is making a key assumption that a combined risk management committee is less effective than a separate risk management committee in managing risk management functions. According to Brown et al. (2009), the risk management structure adopted should be company specific depends on the risk environment faced. It is likely that combined risk management committee may still be appropriate in certain company setting.

Further research is needed to establish some possible measures of effectiveness in order for the board to assess how much a risk management committee has benefited the company. Also, it is worth exploring the link between risk management structures and multiple measures of shareholder value, such as stock price, dividend, market capitalization and cost of capital.

REFERENCES

Adams, M. (1997). Determinants of Audit Committee Formation in the Life Insurance Industry: New Zealand Evidence. *Journal of Business Research*, *38*, 123-129.

Agrawal, A., Chadha, S. (2005). Corporate Governance and Accounting Scandals. *Journal of law and Economics*, *26*, 301-325.

Andersen, T. J. (2005). Risk Management, Capital Structure, and Performance: A Real Options Perspective. *Global Business & Economics Anthology*, 1-19.

Beasley, M. S., Clune, R., Hermanson, D. R. (2005). Enterprise Risk Management: An Empirical Analysis of Factors Associated With the Extent of Implementation. *Journal of Accounting and Public Policy*, 24, 521-531.

Beasley, M. S., Branson, B. C., Hancock, B. V. (2008). Rising Expectations: Audit Committee Oversight of Enterprise Risk Management. *Journal of Accountancy*. New York: American Institute of Certified Public Accountants (AICPA).

Brick, I. E., Chidambaran, N. K. (2008). Board Meetings, Committee Structure, and Firm Performance. Paper presented at The Financial Management Association International (FMA) 2008 Annual Meeting, October 8 – October 11, 2008, Grapevine, Texas.

Brown, I., Steen, A., Foreman, J. (2009). Risk Management in Corporate Governance: A Review and Proposal. *Corporate Governance: An International Review*, *17* (5), 546-558.

Bursa Malaysia Bhd. (2007). *Corporate Governance Guide*, Kuala Lumpur: Bursa Malaysia Bhd.

Bursa Malaysia Securities Berhad (2009). *Main Market Listing Requirements*, Kuala Lumpur: Bursa Malaysia Securities Berhad.

Byrne, J. A. (1996). Listen Up. *Business Week.* Retrieved January 30, 2013 from http://www.businessweek.com/1996/48/b35039.htm .

Carpenter, M. A., Westphal, J. D. (2001). The Strategic Context of External Network Ties: Examining the Impact of Director Appointments on Board Involvement in Strategic Decision Making. The Academy of Management Journal, 44 (4), 639-660.

Carson, E. (2002). Factors Associated with the Development of Board Sub-committees. *Corporate Governance*, *10* (1), 4-18.

Colquitt, L. L., Hoyt, R. E., Lee, R. B. (1999). Integrated Risk Management and the Role of the Risk Manager. *Risk Management and Insurance Review*, *2* (3), 43-61.

Desender, K. A. (2007). On the Determinants of Enterprise Risk Management Implementation. Paper presented at Information Resources Management Association International Conference, 1 January 2007, Vancouver, BC, Canada.

Fama, E. F., Jensen, M. C. (1983). Separation of Ownership and Control. *Journal of Law and Economics*, *26* (2), 301-326.

Ferris, S. P., Jagannathan, M., Pritchard, A. C. (2003). Too Busy to Mind the Business? Monitoring by Directors with Multiple Board Appointments. *The Journal of Finance*, *58* (3), 1087-1111.

Financial Reporting Council (FRC) (2008). The Combined Code on Corporate Governance (Combined Code), London: Financial Reporting Council. Available: www.frc.org.uk.

Hayes, R., Mehran, H., Schaefer, S. (2004). Board Committee Structures, Ownership and Firm performance. Paper presented at the Federal Reserve Bank of New York Finance Seminar Series, New York University, New York.

Kleffner, A. E., Lee, R. B., McGannon, B. (2003). The Effect of Corporate Governance on the Use of Enterprise Risk Management: Evidence from Canada. *Risk Management and Insurance Review*, *6* (1), 53-71.

Lee, P., Stokes, D. Taylor, S., Walter, T. (2003). The Association between Audit Quality, Accounting Disclosures and Firm-Specific Risk: Evidence from the Australian IPO Market. *Journal of Accounting and Public Policy*, *22* (5), 377-400.

Li, C. T., Song, F. M., Wong, S. M. L. (2005). Audit Firm Size Effect in China's Emerging Audit Market. Paper presented at the Asia-Pacific Economic Association (APEA) 1st Annual Conference, July 30 – July 31, 2005, Hitotsubashi University, Tokyo, Japan.

Meulbroek, L. K. (2005). A Senior Manager's Guide to Integrated Risk Management. *Journal of Applied Corporate Finance*, *14* (4), 56-70.

Pagach, D., Warr, R. (2008). The Characteristics of Firms that Hire Chief Risk Officers. North Carolina: North Carolina State University, College of Management.

Perry, T., Peyer, U. (2005). Board Seat Accumulation by Executives: A Shareholder's Perspective. *The Journal of Finance*, *60* (4), 2083-2123.

PricewaterhouseCoopers Oy (PwC) (2008). Enterprise Risk Management (ERM) Benchmarking Survey 2008. Finland: PricewaterhouseCoopers Oy.

The Institute of Risk Management (IRM), The Association of Insurance and Risk Managers (AIRMIC), Alarm (The Public Risk Management Association) (2002). A Risk Management Standard. London: The Institute of Risk Management.

Xie, B., Davidson III, W. N., Dadalt, P. J. (2003). Earnings Management and Corporate Governance: The Roles of the Board and the Audit Committee. *Journal of Corporate Finance*, *9* (3), 295-316.

Yazid, A. S., Hussin, M. R., Razali, A. R. (2008). A Cross-Sectional Study on Foreign Exchange Risk management by Malaysian Manufacturers. *International Business Management*, *2* (2), 28-32.

Young, M. N., Buchholtz, A. K., Ahlstrom, D. (2003). How can board members be empowered if they are spread too thin? *SAM Advanced Management Journal*, *68*.

Zahra, S. A., Pearce, J. A. (1989). Boards of Directors and Corporate Financial Performance: A Review and Integrative Model. *Journal of Management*, *15* (2), 291-334.

AN ATTEMPT TO UNDERSTAND COMPLIANCE DEGREE OF IMPLEMENTING INTERNATIONAL STANDARDS IN ACCOUNTANCY: THE TURKEY EXPERIENCE

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ABSTRACT

Some of the prior studies showed a great deal of non-compliance with international standards related to accountancy. This paper contributes to understanding the compliance degree of implementing international standards in Turkey through the quality control activities (2008-2009-2010-2011) of the Capital Market Board (CMB). In addition, we seek some evidence to find out the dominant party (reporting entity, accounting firm, CMB) over the reporting practices of listed companies and auditing practices of accounting firms in Turkey. The quality control activities of the CMB showed that the implementation of the IFRSs and ISAs were inefficient in Turkey, so the audit firms were cautioned, punished, or their licenses cancelled. We concluded that the compliance degree of the implementing international standards will depend on the knowledge level of the CMB Officio in Turkey. Therefore the CMB or regulator has been dominant over the reporting entity, not the audit firm nor the reporting entity.

INTRODUCTION

As the forces of globalization prompt more and more countries to open their doors to foreign investment, and as the businesses themselves expand across borders, both the public and private enterprises have been increasingly recognizing the benefits of having a commonly understood financial reporting framework supported by strong globally accepted accounting and auditing standards (Jaruga et al., 2007). IAS adoption by the European Union is one of the biggest events in the history of financial reporting, making IAS the most widely accepted financial accounting model in the world. Accordingly, there is an urgent need for managers and accountants to apply International Financial Reporting Standards (the IFRSs) properly.

Regulators expect that the use of IFRSs enhances the comparability of financial statements, improves corporate transparency, increases the quality of financial reporting, and hence benefits investors. The higher disclosure requirements and financial reporting quality that stem from adopting IFRSs should reduce information asymmetry and give a positive signal to investors. However, the transition to IFRSs presents firms with difficulties including technical differences, the cost of change and adjustment, the time factor, and the insufficient experience and knowledge (Iatridis and Rouvolis, 2010).

A survey of PricewaterhouseCoopers (2004) over 300 European firms shows their preference of and their full perception of the benefits of converting to IAS/IFRS, even though some implementation problems and impact on firms' performance have seen as a barrier to the enforcement of IAS/IFRS. Other barriers might include disagreement with certain IAS/IFRS and the complicated nature of certain IAS/IFRS (Cordazzo, 2008).

As a result of remarkable achievements in economic reform, on April, 1987, the Turkish government applied for full membership in the EU though the country has relationship with the European Union began in 1959. On December 2004, EU Commission and the EU leaders persuaded that Turkey had made sufficient progress on fulfilling the so-called "Copenhagen Political Criteria" and negotiations have started. In Turkey, the accounting practices for most companies such as non-traded and SMEs have been strongly influenced by the need of producing information for the tax authorities (Cooke & Çürük, 1996). Nevertheless, Turkey has been improving its financial reporting practices in the recent years. Being a candidate for the EU, member of the IOSCO, and the Basel Committee, Turkey did start to comply with the IFRS earlier. Financial institutions had started as of December 31, 2002. The listed companies had as of December 31, 2004. Without mentioning the level of compliance, a study reported that Turkey has been among the countries where the IFRSs have been entirely implemented since 2005 (Barth, 2007). On the other hand, Independent auditing in Turkey started by the establishment of CMB in 1982 which developed its own standards of external auditing for the companies listed in the ISE. CMB has issued some additional regulations in the area of independent auditing after the global scandals in USA and EU. CMB regulations have some similarities with the Sarbanes-Oxley Act such as restricting other services from auditing activities, compulsory rotation period for audit partners, and requirement of internal audit committee. This study in the developing economy of Turkey differs from previous studies in two significant ways: (1) Turkey has close economic ties with the European Union; (2) the data for this study was developed under international financial reporting standards (IFRS) and International Standards on Auditing (ISA).

The authors of the paper believe that the compliance degree of implementing international standards including the IFRSs depends upon the degree of the knowledge of the regulators' officio on the subject matter. This comes from the recent experience investigated for this study in Turkey. During the last decade, the listed companies have been trying to comply with the IFRS framework for financial reporting, the audit firms accredited by the Capital Market Board (CMB) of Turkey have been conducting the financial statement audit engagements, and consequently the CMB has been controlling the quality and assurance of those engagements. We observed and investigated certain cases that some audit firms have been fined by the CMB due to lack of the compliance degree of the implementation of the international standards, and also for the professional due care issues. From these observations, we kindly concluded that the compliance degree of the implementing international standards will depend on the knowledge level of the CMB in Turkey. Therefore the CMB or regulator has been dominant over the reporting entity, not the audit firm.

In this study, it is aimed to explore the CMB punishment activities towards implementation of international standards in financial reporting and auditing for the Turkish Capital Market. For this purpose, some background information on the literature focusing on the implementation of IFRSs is provided, the pillars of internationalization in accounting & auditing

and the global standard setters are revisited, an illustration about the parties' responsibilities for the implementation of international standards in Turkey is provided, the development of IFRSs in Turkey is cited, the punishment or penalty activities applied by the CMB given of the auditing firms from 2008 to 2011 in Turkey are investigated and summarized.

THE LITERATURE REVIEW

Numerous studies have examined factors that affect the decision to adopt IFRS and the consequences of the decision to adopt these standards. First group of studies focuses on the transition and implementation of IFRS and in particular it highlights their effects for firms (Brochet et al., 2011; Cordazzo, 2008; Hope, Jin, and Kang, 2006; Hung and Subramanyam, 2007; Iatridis, 2010; Iatridis and Rouvolis, 2010; Jermakowicz, 2004; Lopes and Viana, 2008; Ramanna and Sletten, 2009; Cuijpers and Buijink, 2005). Second group of studies investigates the quality of information under IFRS and market reaction to IFRS adoption and/or market value relevance of IFRS adoption (Barth et al., 2008a; Bartov et al., 2005; 2008; Karamanou and Nishiotis, 2009; Armstrong et al., 2010; Barth et al., 2008b; Christensen et al., 2008; Clarkson et al., 2011; Eccher and Healey, 2003; Lopes et al., 2010; Morais and Curto, 2008; Soderstrom and Sun, 2007).

Some studies (Street, Gray, and Bryant, 1999; Street, and Bryant, 2000; Glaum, and Street, 2003) document significant non-compliance with the disclosure requirements of IFRS in many areas. Not surprisingly, the IASB and capital market regulators are increasingly turning their attention to compliance and enforcement issues related to IFRS (Hodgdon et al., 2009).

Brochet et al. (2011) examines the effect of mandatory IFRS adoption on financial statement comparability. If IFRS reduces private information by enhancing the comparability of financial statements, they predict that abnormal returns to insider purchases and analyst recommendation upgrades will be reduced following mandatory IFRS adoption in the UK. They find that abnormal returns to both insider purchases as well as analyst recommendation upgrades decrease following IFRS adoption.

Cordazzo (2008) provide empirical evidence of the nature and the size of the differences between Italian GAAP and IFRS, by analyzing the total and individual adjustments to IFRS in the reconciliations of net income and shareholders' equity of Italian listed companies. Their study shows that the transition to IFRS has produced a quite relevant impact on Italian accounting practices, that depends de facto on the tax driven nature of the Italian accounting system and some disagreement with some IFRS areas relating to fair valuations, capital allocation, leasing, segment reporting, revenue recognition, impairment reviews, deferred taxation, and employee benefits.

Hung and Subramanyam (2007) find that switching to IAS results in widespread and significant changes to deferred taxes, pensions, PP&E, and loss provisions. In addition, they find that total assets and book value of equity are significantly larger under IAS than under German GAAP and that cross-sectional variation in book value and net income are significantly higher under IAS than under German GAAP.

Iatridis (2010) investigated the impact of implementation of the IFRSs on key financial measures of UK firms. The findings show that IFRS implementation has favorably affected the financial performance of firms.

Iatridis and Rouvolis (2010) investigated the effects of the transition from Greek GAAP to IFRS on the financial results of Greek listed firms. According to their findings, the implementation of IFRS has introduced volatility in key income statement and balance sheet measures of Greek firms. Although the effects of IFRS adoption in the first year of adoption appear to be unfavorable, perhaps due to the IFRS transition costs, firms' financial measures improved significantly in the subsequent period.

Jermakowicz (2004) underlines the benefits of complying with IFRS by all listed and non-listed companies by identifying and describing the main differences between IFRS and Belgian GAAP. The survey shows that the major differences between the two set of standards are linked to the tax nature of Belgian accounting rules and the inadequate implementation guidance that creates a risk of a different interpretation of IFRS.

Lopes and Viana (2008) found a high degree of variability among the disclosure either regarding the qualitative or quantitative disclosures. The results show that the objective of comparability, relevance and understandability stated in Committee of European Securities Regulators recommendation were not achieved. The analysis shows that Portuguese standards are more conservative than IFRS.

Street and Larson (2004) conduct a survey within EU member states to test the plans and barriers to convergence to IFRS before their mandatory adoption by listed companies in 2005. The survey highlights that most of EU listed companies do not plan to convergence national GAAP to IFRS, and after the required adoption they might keep this two accounting systems for individual accounts. The main impediments are based on the difficulties rising in the application of some IFRS and tax-system of countries sampled as well as the lack of guidelines of national bodies in the application of such standards.

Previous studies on the quality of accounting standards provide mixed evidence. Barth et al. (2008b) and Bartov et al. (2005) find that the adoption of IASB standards increases accounting quality. Based on a large sample of firms from different countries, Barth et al. (2008b) find that, after IAS adoption, firms evidence less earnings management, more timely loss recognition and more value relevance of accounting data than firms that do not adopt. Bartov et al. (2005) also find that, for a sample of German firms, accounting earnings based on international accounting standards are more value relevant that those based on German accounting standards. However, Eccher and Healey (2003) find that accounting data based on international accounting standards are not more vale relevant than those based on Chinese accounting standards.

Barth et al. (2008b) mentioned that because IAS is principle-based, they could provide greater opportunity for earnings management. Soderstrom and Sun (2007) stated that differences in accounting quality among countries are likely to remain even following the introduction of IFRS. Armstong et al (2010) investigate that market's reaction to the EU's adoption of IFRS, and find on average, a positive response to events signaling an increased likelihood of IFRS adoption. Barth et al. (2008b) analyzed the change in net income, change in cash flows and accruals and found that generally firms applying IAS have less earnings management and more value relevance of earnings between the pre and post-adoption periods due to a higher accounting quality.

Christensen et al. (2008) found that IFRS adoption improves accounting quality, given by less earning management and by timely loss recognition, but only for firms with incentives to

adopt. They found no evidence of accounting quality improvements for firms that are forced to adopt IFRS.

Lopes et al. (2010) find that for firms in the EU IFRS produce a negative effect on accounting quality that continues after 2005, when IFRS becomes mandatory. By contrast, for European firms which are not EU members the IFRS adoption increases accounting quality. These results support the concerns about IFRS application and flexibility and indicate that accounting quality does not improve just because the adoption of IFRS is mandatory.

Morais and Curto (2008) find that firms, during the period when they adopt IASB standards, report less smooth earnings than those firms in periods when they adopted national accounting standards, which seems to suggest an improvement in earnings quality. However, they also find that the value relevance of accounting information decreases with the adoption of IASB standards.

These studies are important in informing regulators of the potential benefits of IFRS adoption. However, they are less helpful in identifying the difficulties that financial statement preparers face during the transition period and/or the costs of adopting the new IFRS accounting standard (Loyeung et.al., 2011).

There is a burgeoning literature on the consequences of IFRS adoption on the firm's information environment, cost of capital, and market impacts. However, much less attention has been directed towards investigating the technical difficulties faced by reporting entities and audit firms while preparing and auditing financial statements under IFRS. The aim of this study is to understand the compliance degree of implementation of the international standards related to the accountancy in Turkey. For this purpose, the penalties given to independent audit firms by the regulatory and supervisory authority, Capital Market Board of Turkey, were investigated.

PILLARS OF INTERNATIONALIZATION IN ACCOUNTING & AUDITING AND THE GLOBAL STANDARD SETTERS

There have been two global organizations that publish international standards in accounting. The first one is the International Federation of Accountants (IFAC); second one is the International Financial Reporting Standards Board (IASB).

The IFAC is the global organization for the accountancy profession dedicated to serving the public interest by strengthening the profession and contributing to the development of strong international economies. In pursuing this mission, the IFAC Board has established the International Auditing and Assurance Standards Board (IAASB), International Accounting Education Standards Board (IAESB), International Ethics Standards Board for Accountants (IESBA) to function as an independent standard-setting body under the auspices of IFAC and subject to the oversight of the Public Interest Oversight Board (PIOB) (IFAC, March 2010). It works with its 164 members and associates in 125 countries and jurisdictions to protect the public interest by encouraging high quality practices by the world's accountants. IFAC members and associates, which are primarily national professional accountancy bodies, represent 2.5 million accountants employed in public practice, industry and commerce, government, and academia.

The IAASB's objective is to serve the public interest by setting high-quality auditing and assurance standards and by facilitating the convergence of international and national auditing and assurance standards, thereby enhancing the quality and consistency of practice throughout the world and strengthening public confidence in global auditing and assurance profession. The IAASB consists of a full-time chairman and 17 volunteer members from around the world comprising practitioners in public practice with significant experience in the field of auditing and other assurance services and individuals who are not in public practice (IFAC, May 2011).

The information in the financial statement has to be understandable, reliable, comparative, significant, complete and timely. To prepare financial statements with these qualifications depends on harmonizing the standards of financial statements and auditing in the whole world. In terms of informing the investors and to protect the public interests, the sub-committee of IFAC, IAASB publishes ISA which contains detailed and explanatory principles of every step of an auditing process and special-purposed auditing agreements (Gençoğlu et al., 2011). The European Union is currently considering a process and timetable for endorsement of ISAs (IFAC, May 2011). Auditing standards apply to audits of all sizes and in all sectors of the economy, tend to be general in nature, and emphasize guidance to the auditor. Auditing standards serve as guidelines for and measures of the quality of the auditor's performance. Auditing standards help ensure that financial statement audits are conducted in a thorough and systematic way that produces reliable conclusions. An audit in accordance with ISAs is designed to provide reasonable assurance that the financial statements taken as a whole are free from material misstatement (Eilifsen et al., 2006). ISAs are grouped into categories, typically according to which phase of the audit process they relate to.

The IAESB develops and issues in the public interest standards, guidelines, and information papers on pre-qualification education, training of professional accountants, and on continuing professional education and development for members of the accountancy profession. The IAESB consists of a chairman and 17 volunteer members from around the world comprising accounting academics, practitioners in public practice, and accountants in business and other individuals with an interest in the work of the IAESB (IFAC, November 2010).

The IESBA develops and issues in the public interest high-quality ethical standards and other pronouncements for professional accountants for use around the world. The IESBA Code of Ethics for Professional Accountants and Interpretations apply to all professional accountants, whether in public practice, in business, education, and the public sector. The IESBA consists of a chairman and 17 volunteer members from around the world comprising representatives from IFAC member bodies, practitioners in public practice and other individuals with an interest in the work of the IESBA (IFAC, November 2010).

The PIOB oversees the public interest activities of IFAC. The objective of the PIOB is to increase confidence of investors and others that such activities, including the setting of standards by the IAASB, IAESB, and IESBA, are properly responsive to the public interest.

The International Financial Reporting Standards Board (IASB) is an independent, not-for-profit private sector organization working in the public interest. Its principal objectives are to develop a single set of high quality, understandable, enforceable and globally accepted IFRSs through its standard-setting body, the IASB; to promote the use and rigorous application of those

standards; to take account of the financial reporting needs of emerging economies and small and medium-sized entities (SMEs); and to bring about convergence of national accounting standards and IFRSs to high quality solutions.

The International Accounting Standards Board (the IASB) is the independent standard-setting body of the IFRS Foundation. IASB objective is to develop a single set of high quality, understandable, enforceable and globally accepted financial reporting standards based upon clearly articulated principles. IASB has 15 full-time members and they are responsible for the development and publication of IFRSs, including the IFRS for SMEs and for approving Interpretations of IFRSs as developed by the IFRS Interpretations Committee (formerly called the IFRIC). Since 2001, almost 120 countries have required or permitted the use of IFRSs. All remaining major economies have established time lines to converge with or adopt IFRSs in the near future (IASB, "Who we are and what we do", July 2011).

Since 1 January 2005 all listed companies in the European Union have been required to publish their consolidated financial statements in accordance with IFRS. As a candidate member to EU, publicly companies in Turkey have been preparing their consolidated financial statements under IFRS since 2005.

PARTIES FOR THE IMPLEMENTING INTERNATIONAL STANDARDS IN TURKEY

As we mentioned in the previous section, there are three parties who are responsible for the accurate implementation of the IFRSs. These are; the management of the reporting company, the board of directors of the reporting company, the independent auditing firm and the capital market board of Turkey.

Business organizations exist to create value for their stakeholders. To form a business enterprise, entrepreneurs decide on an appropriate organizational form and hire managers to manage the resources that have been made available to the enterprise through investment or lending (Eilifsen et al., 2006).

The board of directors is responsible for establishing corporate objectives, developing broad policies, and selecting top-level personnel to carry out these objectives and policies. The board also reviews management's performance to be sure that the company is well run and stockholders' interests are promoted (Davis et. al., 1980, p.312). Board of directors can be seen as "independent" controlling element to ensure the management works in favor of stockholders (Gençoğlu, 2001).

Management of the company is responsible for preparing financial statements and annual reports timely and provides them to the independent auditor. Auditor demands from the management to submit all information needed for legal and diligent audit and the documents that can be formed a legal basis. The crucial function of auditing in the economy and its role of serving the public interest have for a long time driven substantial government involvement and regulation of the auditing sector (Eilifsen et al., 2006).

Capital market board's objective is to regulate and control the secure, fair and orderly functioning of the capital markets and to protect the rights and benefits of the investors. Capital market board has the authority and responsibility to supervise the auditing firms.

BACKGROUND AND HISTORY OF THI IFRSS IN TURKEY

The development of IFRSs in Turkey has a long story. The most influential institutions affecting the development of International Financial Reporting Standards in Turkey can be cited as (1) The Expert Accountants' Association of Turkey (TMUD) (2) Capital Market Board of Turkey (SPK) (3) Turkish Accounting and Auditing Standards Board (TMUDESK) (4) The Banking Regulation and Supervising Agency (BDDK) (5) Turkish Accounting Standards Board (TMSK). The first attempt was made by the TMUD established in 1942. Following the establishment of International Federation of Accountants (IFAC) in 1977 (of which TMUD was a founding member) the TMUD translated all IASs and presented them to TMUD members. Since the TMUD had not been a powerful organization the implementation of International Accounting Standards Committee (IASC) standards was not very effective (Yılmaz & Selvi, 2004).

The forceful implementation of accounting standards came with the establishment of CMB that was empowered by the Capital Markets Law (CML), which was enacted in 1981. CMB was based on the Securities and Exchange Commission in the US and has extensive powers including specifying accounting standards for companies. The listed companies in the Istanbul Stock Exchange (ISE) have started to use accounting and reporting standards that were set by the Board. In 2001, the Board issued a communiqué on inflation accounting and a revised communiqué on consolidation of financial statements. The first financial statements prepared using these communiqués were published as of November 25, 2003. These regulations were fully compatible with the related IASs. Moreover, the Board issued a broad set of financial reporting standards that are mostly compatible with IASs and IFRSs in 2003. These standards became effective for listed companies from the beginning of 2005.

Another attempt was made by the TMUDESK which was established in 1994. The members of this board were appointed by Union of Chambers of Certified Accountants of Turkey (TURMOB) and the representatives of the related institutions. From 1994 to 2001, TMUDESK has published 19 Turkish Accounting Standards which were in conformity with the IASs. However, these standards could not be applied by companies due to lack of sanction.

BDDK which was established in 2000 after the banking crisis in Turkey, was another regulatory body that set accounting standards for banks and financial institutions. The standards issued by BDDK in 2002 were compatible with IASs and IFRSs.

TMSK was established in 2002 by a legal regulation. This new Board has legal power for setting Turkish Accounting Standards and sanction for all companies in Turkey. The Board has been publishing accounting standards which are fully compatible with IASs and IFRSs.

All of the accounting standards published by these different regulators were similar in nature. However, a harmonization of accounting standards was needed within the country. For this purpose, BDDK abolished its accounting standards by issuing a regulation in 2006. BDDK decided that banks and financial institutions will use accounting standards published by the TMSK. In addition

to that, CMB of Turkey abolished its accounting standards by issuing a communiqué in 2008. The communiqué requires listed companies in the ISE to prepare their financial statements compatible with IFRSs adopted by the European Union. The communiqué specifies that companies can use accounting standards published by the TMSK which are compatible with the IFRSs adopted by the European Union. On December 2, 2011 a Government Decree enacted so the Public Interest, Accounting and Auditing Standards Board (PIAASB) has been established. Currently, PIAASB became the only organization that published accounting standards which are fully compatible with IASs and IFRSs. Moreover, the new Turkish Commerce Law requires not only for public companies, but also for some big companies[1] to prepare their financial statements in accordance with the Turkish Accounting Standards that are compatible with IFRSs.

THE TURKEY EXPERIENCE

The Capital Market Board (the CMB) of Turkey had prepared a set of financial reporting framework and standards adopted from the IFRS, and published on November 25, 2003. It was a communiqué of Serial X1, No 25. As mentioned above, this set was entirely compatible to the IFRS. This set was mandatory for the listed companies as of January 1, 2005 as it was in the EU Countries. But it was encouraged to voluntarily start to apply earlier. After having couple year implementation of this set, on 9 January 2009, the CMB published some remarks relating to the inefficiencies of the implementation. These remarks were summarized in Table – 1 as following[2]:

Table 1
The CMB's Findings from Investigations Realized on the Financial Statements Published by the Listed Companies as of December 31, 2007

Standards	Examples
IAS 1	* Did not fulfill the disclosure requirements of the IAS 1 * Did not present comparative information according to IAS 1 * Statement of Changes in Equity and Cash Flow Statement did not include any reference to the notes. * Did not provide information about the par value per share, the rights, preferences and restrictions attaching to that class in the 2007 financial statements. * Did not disclose the nature of the expenses, including depreciation and amortization expense and employee benefits expense.
IAS 8	* Did not disclose that they have not applied a new standard or interpretation that has been issued but is not yet effective.
IAS 10	* No information found about the date when the financial statements were authorized to issue and who authorized. * No information found whether the entity's owners or others have the power to amend the financial statements after issue contrary to IAS 10.
IAS 11	* Did not disclose the amount of contract revenue recognized as revenue in the period, the methods used to determine the contract revenue recognized in the period, the methods used to determine the stage of completion of contracts in progress.
IAS 12	* Did not disclose the reconciliation of the tax expense and accounting profit. * No information found about the types of temporary differences.
IAS 16	* Did not disclose the reconciliation of the carrying amount at the beginning and end of the period for tangible assets.
IAS 18	* Disclosures related to recognizing the revenue are inadequate.
IAS 19	* Did not disclose the accounting policy for recognizing actuarial gains and losses, the reconciliation of opening and closing balances of the present value of the defined benefit obligations precisely.
IAS 24	* Did not disclose the name of the parent and the ultimate parent of the group. * Definition of the related parties was not provided clearly.
IAS 28	* Did not disclose the summarized financial information of associates, including the aggregated amounts of assets, liabilities, revenues and profit or loss.
IAS 38	* Did not provide the reconciliation of the carrying amounts of intangible assets at the beginning and end of the period.
IFRS 7	* Disclosures related to IFRS 7 are not sufficient.

In order to understand the power of the CMB over the reporting entities listed in the Istanbul Stock Exchange and also over the auditing firms; some cases have been put in this part of the paper.

The ABC Audit Firm

ABC is an international auditing company that has been operating more than two decades in Istanbul. Independent auditing, taxation and other consulting services have been provided by ABC. Company ABC has been affiliated by one of the top ten global auditing firms. It has been ranked also one of the top ten in Turkey.

In late 2010, Company ABC was controlled by the CMB Officio in terms of quality and assurance. For this purpose, three financial audit engagements realized recently by Company ABC have randomly been chosen. The inspection and control took almost three months in the site of Company ABC.

Company ABC has to comply with the IFRSs and the IASs since they are mandatory for the listed entities and also the audit firms accredited by the CMB.

Certain findings below were extracted from the CMB report prepared by the inspectors. Those findings can be grouped as following:

- •Critics on the audit plan and program used by the ABC Audit Firm for the financial statement audit engagements (Table – 2/A)
- • Critics on the compliance with the International Standards on Auditing and Assurance (Table – 2/B)
- •Critics on the financial statement engagement for the client X, Y, Z (Table – 2/C)

From the date summarized in the Table – 2/A-B-C, it can be argued that the ABC Audit Firm had inefficiencies and effectiveness on the financial statement audit engagements that they are captured during the CMB quality control inspections.

Table 2/A
Critics on the Audit Plan and Program Used for the Financial Statement Audit Engagements

Subjects	Punishments or Required
Audit plan and program for the investment companies missing	To be completed in three months.
Audit plan and program has inappropriateness in complying with • IAS 18 in terms of using fair value for measuring credit sales. • IAS 1 in the subjects of extraordinary items in the income statements. • IAS 38 in terms of measuring intangible assets. • IAS 16, IFRS 5, IAS 23 in terms of measuring tangible assets long lived. • IAS 2 and IAS 23 in terms of measuring inventories. • IAS 28 and IAS 31 in terms of measuring financial investments. • IAS 32, IAS 39 and IFRS 7 in terms of measuring marketable securities.	To be developed and adjusted in three months.

Table 2/B Critics on the Compliance with the International Standards on Auditing and Assurance	
Subjects	**Punishments or Required**
Incomplete work on the understanding of the client entity and its environment, on the assessing the risk of material misstatements, and lack of documentations.	Fiscally fined
Incomplete work on the understanding of the client entity's internal control environment, and lack of documentations.	Fiscally fined
Incomplete work on the determining of the possible fraud or error materially impacting on the risk of misstatement, and lack of documentations	Fiscally fined
Inefficiently using analytical procedures on the understanding of the client entity and its environment in terms of risk assessment	Fiscally fined
Inefficiently using substantive tests on the new accepted client's financial reporting	Fiscally fined
Lack of identifying auditors and subordinates who are preparing and approving working papers	Fiscally fined

Table 2/C Critics on the Financial Statement Engagement for the Clients X, Y, Z	
Subjects	**Punishments or Required**
Violating the Field Standards of the ISAs	Fiscally Fined
Violating the IAS 17	Fiscally Fined
Violating the IAS 18	Fiscally Fined
Violating the IAS 24	Fiscally Fined
Violating the IAS 27	Fiscally Fined
Violating the IAS 29	Cautioned
Violating the IAS 36	Fiscally Fined
Violating the IAS 2	Fiscally Fined
Violating the Audit Documentation Standard of the ISAs	Fiscally Fined
Violating the Statutory Audit Legislation	Fiscally Fined
Violating the IFRS 1	Cautioned
Violating the IFRS 1 Owners' Equity	Fiscally Fined
Violating the IFRS 1 Net Income	Fiscally Fined
Violating the IFRS 7	Fiscally Fined

According to the 8th Directive of the EU that is related to the independent auditing, results of the quality control activities realized during 2008-2009-2010-2011 by the CMB should be disclosed to the public. The final situation at the matter is summarized in Table – 3.

Table 3 Punishments Applied by the CMB to the Audit Firms During 2008-2011				
Year	**# of the Firms Cancelled**	**# of the Firms Fiscally Fined**	**# of the Firms Cautioned**	**Total**
2008	4	3	5	12
2009	1	10	8	19
2010	2	3	8	13
2011	0	3	9	12
TOTAL	**7**	**19**	**30**	**56**

The CMB Report summarized the observations and the findings about the independent auditing firms and independent auditors are provided in Table - 4.

Table 4
Critics on the Compliance with the International Standards on Auditing

Standards	Examples
ISA 200	* Responsible partners did not qualify the professional experience requirement of work actually as an auditor, senior auditor or manager at least for two years in an independent auditing firm that audits the capital market institutions and publicly held companies. * Managers and auditors do not have an independent auditor's license. * Not having a sufficient working place and technical equipment. * Inadequacy in the number and quality of the auditors. * Not having professional liability insurance. * Contrary to full-time working principles, permanent auditing staff worked for other companies and do not actually engage with the independent auditing.
ISA 230	* There is not enough information about the nature, timing, extent of the audit procedures performed, who performed the audit work and reviewed the audit work, and the results of the audit procedures performed. * Not documenting the evaluation of the entities accounting and internal control system. * Not documenting the works related to determination of the materiality and the risk assessments. * Not documenting the audit plan and audit program * Not documenting the evaluation of the business environment in which the client operates. * Not documenting the disclosures about the sampling technique that is used by the independent auditor. * Not documenting the disclosures about the audit techniques used by the independent auditor. * Inadequacy of the audit working papers in terms of quality and content. * Not documenting the audit strategy that is followed while performing the audit. * In the context of professional skepticism principle, audit firms do not document the assessment and work related to possible fraud that may be faced while auditing. * No confirmation letter is gathered from the management of the client company stated that necessary precautions are taken in order to prevent fraud and the responsibility is undertaken by the management.
ISA 320	After investigating the audit practices of 46 independent audit firms, 16 of them did not provide any information about the materiality that determines the extent and timing of the audit procedures, and any information about assessing the material misstatement risk related to the information and documents that client's management prepared.
ISA 700	* Expressing a clean opinion while there were scope limitations. * Expressing a clean opinion while there were no sufficient disclosures in the financial statements. * Expressing a clean opinion while there were departures from applicable financial reporting framework set by the board. * Not comply with the format of the independent audit opinion.
ISA 500	* Not attending to the counting the cash on hand. * Not attending to the counting of the inventory and not have any activity related to the valuation of the inventories. * Not gathering sufficient confirmation letters related to the trade receivables and payables, relied on documents provided by the client. * Not sufficient investigation about the financial statements of the subsidiaries and the affiliates. * Not checking-up the calculation of the allowances. * Not gathering adequate confirmation letters from the banks. * Not provide adequate information and documents related to doubtful accounts. * Not checking-up the accuracy of the depreciation calculation tables that was taken directly from the client. * Not checking-up the accuracy of the severance benefits tables that were taken directly from the client. * Not providing adequate information and documents about related party transactions. * Not evaluating the financial information by using analytical procedures. * Accepting the expert reports without any adjustments and do not evaluate the accuracy of the results. * Not preparing working papers related to impairment tests of tangible and intangible assets.

Table 4
Critics on the Compliance with the International Standards on Auditing

Standards	Examples
ISA 300	* It is found that there is no information about the separate audit plan and program that contains the whole set of financial accounting standards of the clients that were audited. * Existing audit plan and programs does not updated. * Not disclosing the nature, extent and timing of the audit techniques in the audit plan. * Not disclosing the strategy that will be pursued during the audit work in the audit plan. * Not providing the income statement items in the audit program. * Not preparing the Turkish version of the audit plan and program.
ISA 550	* Not performing the required audit techniques to expose the unusual transactions or transactions with unusual prices between the related parties. * Expressing a clean opinion without obtaining sufficient independent audit evidence about the related party transactions.
ISA 520	* Not using the assumptions and modeling * The industry specific risks were not determined by analyzing the industry. * Not analyzing the sector that entities are operating, and not determining sector risks. * Client's financial positions were not analyzed by using analysis techniques.
ISA 545	After investigating the audit works of 46 audit firms, it is found that 8 of them have errors in calculating the fair value. In addition, it is found that they did not check-up the accuracy and appropriateness of the calculations.

Source: http://spk.gov.tr/apps/haftalikbulten/displaybulten.aspx?yil=2011&sayi=47&submenuheader=null&ext=.pdf (November 29, 2011)

GENERAL EVALUATION

Because of the inadequacy of the nature and content of the audit documentation the audit work does not support the audit opinion. In addition, the documentation does not show that work is conducted in accordance with the auditing standards. Since the working papers are inadequate in terms of quality and scope the assumptions used in the financial statements were not possible to test. In the audit works; the lack of assessing the internal control, lack of assessing the risk and lack of determining the materiality, lack of analytical procedures and lack of detailed plan, caused departure from the reasonable assurance.

In accordance with the quality control practices of the Board, the auditing firms and auditors that do not conduct the audit in line with the communiqué are punished in the form of accreditation offset, administrative fine and warning.

LESSONS TO BE LEARNED AND THE RECOMMENDATIONS FOR THE FURTHER STUDIES

This study has an assumption that the compliance degree of the implementation of the international standards related to the accountancy depends upon the knowledge level of the power institution. This study attempted to understand the compliance degree of implementing of the international standards related to the accountancy in Turkey through the quality control activities of the CMB since it has been power in the implementations of the international standards related to the accountancy in the Turkish Financial Market for about thirty years.

The quality control activities during 2008-2009-2010-2011 of the CMB of Turkey were examined in this study. After having quality control activities over the audit firms, the CMB stated

that the implementations of the IFRSs had certain inefficiencies, so the audit firms were cautioned, punished, or cancelled. During the period mentioned seven audit firms were taken out of service, sixteen were fiscally punished, and twenty were cautioned. It can be argued that practices and implementations were not satisfactory until December 31, 2007. Inefficiencies also were existing in the ISAs even they are very crucial for the development of the audit profession and the public practice as of November 30, 2011 even the public practice has existed more than two decades. Our findings from the experience we examined are very interesting. These can be compared with other experience that might be found in the other countries.

In addition certain statistical techniques might be applied for cross-relations about the pronouncements and the situation in the practice.

ENDNOTES

1 Companies that meet at least two of the criteria mentioned below for 2 consecutive years; a) total assets exceeded 150 million TL b) total sales exceeded 200 million TL c) more than 500 employees.

2 http://spk.gov.tr/apps/haftalikbulten/displaybulten.aspx?yil=2009&sayi=2&submenuheader=null&ext=.pdf, Nov.29, 2011.

REFERENCES

Armstrong, C.S., M.E. Barth, A.D. Jagolinzer, E.J. Riedl (2010). Market reaction to the adoption of IFRS in Europe, *The Accounting Review,* 85(1), 31-61.

Barth, M. (2007). One global conceptual framework for financial reporting, *Proceedings of the 30th EAA Annual Congress,* Lisbon, Portugal.

Barth, M.E. (2008a). Global financial reporting: implications for U.S. academics, *The Accounting Review,* 83(5), 1159-1179.

Barth, M.E., W.R. Landsman, M.H. Lang (2008b). International Accounting Standards and accounting quality, *Journal of Accounting Research,* 46(3), 467-498.

Bartov E., S.R. Goldberg, M. Kim (2005). Comparative value relevance among German, U.S., and International Accounting Standards: A German stock market perspective, *Journal of Accounting, Auditing and Finance*, 20(2), 95-119.

Brochet, F., A. Jagolinzer, E.J. Rield (2011). Mandatory IFRS adoption and financial statement comparability, Retrieved March 10, 2012, from http://ssrn.com/abstract=1819482.

Christensen, H.B., E. Lee, M. Walker (2008). Incentives or standards: what determines accounting quality changes around IFRS adoption?, Retrieved March 10, 2012, from http://ssrn.com/abstract=1013054.

Clarkson, P., J.D. Hanna, G.D. Richardson, R. Thompson (2011), The impact of IFRS adoption on the value relevance of book value and earnings, Retrieved March 10, 2012, from http://ssrn.com/abstract=1614362.

Cooke, T.E., Çürük T. (1996). Accounting in Turkey with reference to the particular problems of lease transactions, *The European Accounting Review,* 5(2), 339-359.

Cordazzo, M. (2008). The impact of IAS/IFRS on accounting practices: evidence from Italian listed companies, *Proceedings of the 31rd EAA Annual Congress*, Rotterdam, Netherlands.

Cuijpers, R., W. Buijink (2005). Voluntary adoption of non-local GAAP in the European Union: a study of determinants and consequences, *European Accounting Review*, 14(3), 487-524.

Davis, K., W.C. Frederick, R.L. Bolomstrom (1980). *Business and society,* McGraw Hill Series in Management, USA.

Eccher, E., P.M. Healy (2003). The role of International Accounting Standards in transitional economies: A study of the People's Republic of China, Retrieved March 10, 2012, from

http://ssrn.com/paper.taf?abstract_id=233598.
Eilifsen A., W.F. Messier, S.M. Glover, D.F. Prawitt (2009). *Auditing and assurance services (Second European Edition),* McGraw Hill Companies, USA.
Glaum, M., D.L. Street (2003). Compliance with the disclosure requirements of Germany's new market: IAS versus US GAAP, *Journal of International Financial Management and Accounting,* 14(1), 64-100.
Gençoğlu, Ü.G., G. İşseveroğlu, Y. Ertan (2011). Audit and oversight of audit in terms of commerce law of Turkey, *Business and Economics Research Journal,* 2(1), 109-120.
Hodgdon, C., R.H. Tondkar, A. Adhikari, and D.W. Harless (2009). Compliance with International Financial Reporting Standards and auditor choice: new evidence on the importance of the statutory audit, *The International Journal of Accounting,* 44, 33-55.
Hope, O., J. Jin, T. Kang (2006). Empirical evidence on jurisdictions that adopt IFRS, *Journal of International Accounting Research,* 5(2), 1-20.
Hung, M., K.R. Subramanyam (2007). Financial statement effects of adopting International Accounting Standards: the case of Germany, *Rev Acc Stud,* 12, 623-657.
Iatridis, G., S. Rouvolis (2010). The post-adoption effects of the implementation of International Financial Reporting Standards in Greece, *Journal of International Accounting, Auditing and Taxation,* 19, 55-65.
Iatridis, G. (2010). IFRS adoption and financial statement effects: the UK case, *International Research Journal of Finance and Economics,* 38, 165-172.
IFAC, International Auditing and Assurance Standards Board Terms of Reference, March 2010.
IFAC, International Auditing and Assurance Standards Board Fact Sheet, May 2011.
IFAC, International Accounting Education Standards Board Fact Sheet, November 2010.
IFAC, International Ethics Standards Board for Accountants Fact Sheet, November 2010.
Jaruga, A., J. Fijalkowska, M. Jaruga-Baranowska, M. Frendzel (2007). The impact of IAS/IFRS on Polish accounting regulations and their practical implementation in Poland, *Accounting in Europe,* 4(1), 67-78.
Jermakowicz, E.K. (2004). Effects of adoption of International Financial Reporting Standards in Belgium: the evidence from BEL-20 companies, *Accounting in Europe,* 1, 51-94.
Karamanou, I., G.P. Nishiotis (2009). Disclosure and the cost of capital: Evidence from the market's reaction to firm voluntary adoption of IAS, *Journal of Business Finance&Accounting,* 36(7), 793-821.
Lopes, P., R.C. Viana (2008). The transition to IFRS: Disclosures by Portuguese listed companies, Universidade do Porto, Faculdade de Economica do Porto, FEP Working Paper, Number 285.
Lopes, C., A. Cerqueira, E. Brandao (2010) Impact of IFRS adoption on accounting quality in European firms, *Journal of Modern Accounting and Auditing,* 6(9), 20-31.
Loyeung, A., Z. Matolcsy, J. Weber, and P. Wells (2011). An analysis of the accounting errors that arise during the transition to IFRS, Retrieved March 10, 2012, from http://ssrn.com/abstract=1752485.
Morais, A.I., J.D. Curto (2008). Accounting quality and the adoption of IASB standards-Portuguese evidence, *R Cont. Fin.,* 19(48), 103-111.
Ramanna, K., E. Sletten (2009). Why do countries adopt International Financial Reporting Standards, Harvard Business School Working Paper, 09-102.
Soderstrom, N.S., K.J. Sun (2007). IFRS adoption and accounting quality: a review, *Proceedings of the 30th EAA Annual Congress*, Lisbon, Portugal.
Street, D.L., S.J. Gray, S.M. Bryant (1999). Acceptance and observance of International Accounting Standards: an empirical study of companies claiming to comply with IASs, *The International Journal of Accounting,* 34(1), 11-48.
Street D.L., S.M. Bryant (2000). Disclosure level and compliance with IASs: a comparison of companies with and without U.S. listings and fillings, *The International Journal of Accounting,* 35(3), 305-329.
Yılmaz, F., Y. Selvi (2004). Recent accounting developments in Turkey on the way to global harmonization, *Proceedings of the Accounting, Theory and Practice Conference,* Taipei, Taiwan.

USE TAX COMPLIANCE: THE ROLE OF NORMS, AUDIT PROBABILITY, AND SANCTION SEVERITY

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ABSTRACT

Utilizing the "slippery slope" framework, this study examined the determinants of individuals' motivation to report use tax. Structural equation modeling analysis suggested that voluntary use tax compliance was heavily influenced by personal and social norms. In contrast, enforced use tax compliance was primarily related to social norms and individuals' perception of audit probability and sanction severity. The current study further found that voluntary compliance accounted for a higher proportion of the variance in use tax reporting behaviors than enforced compliance. The above findings confirm the importance of power and trust in the context of use tax compliance. Implications for policy makers are discussed.

INTRODUCTION

One of the most common tax compliance issues facing state and local governments in the United States is the enhancement of use tax compliance (Sanders, Reckers, & Iyer, 2008). Use tax is complementary to sales tax. According to state and local tax laws, purchases are subject to use tax in the state where the goods are consumed if sales tax has not been collected in the state of purchase. It is believed that use tax has a relatively lower compliance rate than other major taxes because of its low visibility (e.g., Sanders et al., 2008; Washington State Department of Revenue, 2006). Researchers have consistently found evidence that consumers make Internet purchases to avoid sales tax as well as use tax (e.g., Alm & Melnik, 2005; Charles & Jaimin, 2007; Goolsbee, 2000). Iyer, Reckers, and Sanders (2010) further suggest that consumers from states with a high sales tax rate are more likely to purchase goods from a proximal state with no sales tax or a lower sales tax rate without reporting use taxes on their purchases. Because of the important contribution of use tax to state and local government revenues, more research is needed in the field of use tax compliance (Johnson, Masclet, & Montmarquette, 2010). States' desires to increase use tax compliance provide the motivation for the current paper.

To provide a clearer understanding of use tax compliance, this paper employed the "slippery slope" framework (Kirchler, Hoelzl, & Wahl, 2008) to explore the important antecedents of voluntary versus enforced compliance with respect to use tax. Specifically, structural equation modeling (SEM) analysis was conducted to obtain insights into the indirect effects of personal, social, and national norms, as well as perceived audit probability and sanction severity on use tax reporting behaviors via voluntary and enforced compliance.

Given the significant role of use tax in state and local tax revenues, understanding the intentions of individuals to comply with use tax is an important topic for researchers and policy makers. Although researchers have become increasingly interested in investigating the determinants of use tax compliance (e.g., Hageman, 2009; Iyer et al., 2010; Jones, 2009; Sanders et al., 2008), studies on use tax are still rare (Alm, Sjoquist, & Wallace, 2006). Furthermore, previous research has generally neither distinguished between voluntary and enforced compliance nor explored the extent to which use tax reporting behaviors differ with respect to voluntary versus enforced compliance (Kirchler et al., 2008). This study contributes to the literature on use tax compliance by explicitly examining the relative importance of norms, audit probability, and sanction severity on use tax reporting behaviors via voluntary versus enforced compliance. The results may be particularly informative to policy makers who are interested in understanding and increasing the inclination of consumers to report use tax when sales tax has not been charged.

The remainder of this paper consists of four sections. The first section reviews the existing literature on use tax compliance and develops the research model. The second section describes the methodology. The third section presents the results, and the final section concludes the paper by discussing the implications of the current study and providing suggestions for future research.

LITERATURE REVIEW

Use tax compliance

Use tax is an alternative method for state and local governments to collect sales tax revenues. Use tax applies when consumers store, use, or consume goods in their home state while sales tax has not been charged in the state of purchase (Nelson & Healy, 2012). The difference between sales and use tax lies with who (i.e., the seller or the buyer) remits the tax. Out-of-state transactions and Internet purchases are the most common use tax bases (Beaulieu, 2011).

Use tax compliance is considered a serious problem because few people actually report use tax (Bruce & Fox, 2001; Sanders et al., 2008). For example, a Minnesota sales and use tax gap project estimated a sales and use tax loss of $451 million in 2000, which accounted for 12% of actual sales and use tax collections (Cook, de Seve, & Evans, 2002). This project estimated a sales and use tax loss of $693.1 million in 2007, with an annual increase of 6.3%. Furthermore, the Washington State Department of Revenue (2006) found that use tax had the lowest compliance rate among major taxes. Iyer et al. (2010) cited evidence that people who live in states with higher sales tax were more likely to make purchases from proximal states with lower or no sales tax to avoid both sales and use tax. In addition, the rapid growth of e-commerce in recent years has also prompted concerns regarding severe losses in use tax revenues because

online sales taxes are generally not collected (e.g., Alm and Melnik, 2010; Fox & Murray, 1997; Luna, 2004; Mikesell, 1997; Murray, 1995, 1997)[1]. For instance, Bruce, Fox, and Luna (2009) estimated that state and local governments would lose approximately $10 billion in uncollected e-commerce taxes in 2011. The above evidence suggests that use tax losses may become a severe problem for state and local governments.

Given the vital effect of use taxes on the tax revenues of state and local governments, use tax compliance is increasingly becoming an area of concern for researchers. Use tax non-compliance may be more severe than other tax non-compliance due to the low visibility of use tax (e.g., Carnes & Englebrecht, 1995; Sanders et al., 2008). Taxpayers have more opportunities to evade use tax because it is virtually impossible to collect use tax from online purchases (Alm et al., 2006). As such, use tax generally has higher compliance costs than other taxes (Iyer et al., 2010); therefore, it is more cost-efficient to motivate taxpayers to voluntarily comply with use tax.

Voluntary versus enforced compliance

Kirchler et al. (2008) propose a "slippery slope" framework that distinguishes the two types of tax compliance - voluntary compliance and enforced compliance. Specifically, taxpayers may voluntarily comply "because they feel obliged to do so as members of the community" (Kirchler et al., 2008, p. 211). On the other hand, taxpayers may also comply because they perceive "the costs for non-compliance as being too high" (Kirchler et al., 2008, p. 211). Kirchler et al. (2008) further posit that voluntary compliance is largely determined by taxpayers' trust of tax authorities, whereas enforced compliance is mostly based on the power of authorities.

Two studies have investigated enforced use tax compliance and found that use tax reporting behaviors were significantly enhanced by enforcement strategies such as accountability affidavits, perceived detection risk, and sanction awareness (Iyer et al., 2010; Sanders et al., 2008). These two studies have validated the existence of enforced compliance and supported the influence of the authorities on use tax compliance behaviors.

A review of the prior literature suggests that there is a lack of research evidence regarding the determinants of voluntary compliance in use tax. According to the "slippery slope" framework, use tax compliance can be enhanced either by increasing the power of state and local governments (e.g., increasing the potential audits and sanctions) or by increasing the trustworthiness of state and local governments (e.g., respecting taxpayers). Distinguishing the two forms of tax compliance is particularly meaningful to use tax compliance research because enforced strategies have relatively higher compliance cost (Washington State Tax Structure Study Committee, 2002); using education and persuasion as strategies to increase compliance is less costly than legal sanctions and audits. Therefore, it is important to build taxpayers' trust in their state and local governments by very carefully changing the current tax environment to encourage voluntary compliance in use tax (Cornia, Sjoquist, & Walters, 2004, p. 12). The

following section discusses the important determinants of voluntary compliance with respect to use tax.

Personal, social, and national norms

A number of studies have examined norms as a significant factor in the determination of tax compliance (e.g., Bobek & Hatfield, 2003; Bobek, Roberts, & Sweeney, 2007; Hanno & Violette, 1996; Wenzel, 2004, 2005a, 2005b). Jones (2009) and Hageman (2009) both suggest that the consideration of norms is particularly important in an individual's decision to comply with use tax.

Kirchler et al. (2008) have defined three levels of norms that may influence tax reporting behaviors: personal (i.e., internalized personal standards), social (i.e., socially approved standards), and national norms (i.e., cultural standards). Prior studies have provided consistent evidence with regard to the influence of personal norms on voluntary tax compliance (e.g., Grasmick & Bursik, 1990; Wenzel, 2004). Taxpayers with stronger tax ethics are less likely to engage in non-compliance because they perceive that intentional non-compliance is unethical (e.g., Jackson & Milliron, 1986; Kaplan & Reckers, 1985; Reckers, Sanders, & Roark, 1994; Trivedi, Shehata, & Lynn, 2003).

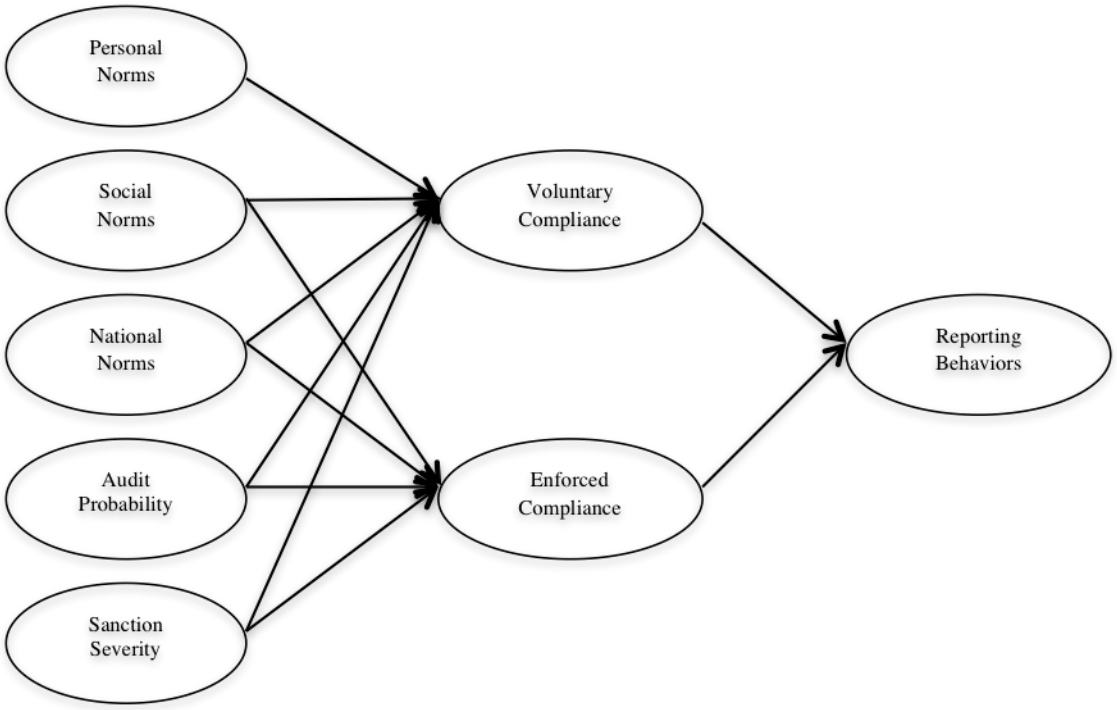
The impact of social norms is widely considered as one of the most important factors in tax compliance (for a review, see Kirchler, 2007). Individuals' intentions to comply with taxes are generally influenced by the acceptance of tax non-compliance within their reference groups (Wenzel, 2004). For example, an individual's perception regarding tax compliance can be affected by group communication (e.g., Alm, McClelland, & Schulze, 1999) and informal discussions (e.g., Steenbergen, McGraw, & Scholz, 1992). People are more likely to be compliant when tax compliance behaviors are socially acceptable (e.g., Cullis & Lewis, 1997; Hanno & Violette, 1996; Henderson & Kaplan, 2005; Wärneryd & Walerud, 1982). On the contrary, people have greater intentions to engage in tax non-compliance if they perceive that other people in their social group approve of non-compliance. For example, people are more likely to engage in tax evasion when they observe that their peers also avoid taxes (e.g., Collins, Milliron, & Toy, 1992; Kaplan & Reckers, 1985) or when they believe that tax evasion is common (e.g., Torgler, 2003c).

On the national level, cultural standards with regard to tax compliance are important in regulating tax compliance as well (for a review, see Kirchler, 2007). For example, in an experimental study, Alm, Sanchez and deJuan (1995) found that tax compliance in the US is stronger than that in Spain. They suggest that the difference in tax compliance may be attributable to distinct national norms embedded in the cultural standards of the two nations. In addition, the evolution of cultural standards during societal transition may also influence tax compliance (e.g., Alm & Torgler, 2006; Chan, Troutman, & O'Bryan, 2000; Torgler, 2003a, 2003b).

Research model

The foregoing discussion suggests that the consideration of norms may affect an individual's intention to comply with use tax. Given the above, I proposed a research model as shown in Figure 1, which serves as the conceptual framework for the current study.

Figure 1: Proposed Model



There were three objectives in this research model. The first objective of this study was to explore the influence of personal, social, and national norms on voluntary versus enforced compliance to gain insights into the determinants of an individual's intention to comply with use tax. Kirchler et al. (2008, p. 218) suggest that norms regarding tax compliance play a crucial role in voluntary and enforced compliance. Taxpayers may be more willing to voluntarily comply with use tax when their compliance behaviors are supported by their personal, social, and national norms. Norms also influence enforced compliance, as taxpayers may hold pervasive beliefs in social and national norms with respect to the power of state and local governments.

A further objective of this study was to examine the relationship among voluntary compliance, enforced compliance, and reporting behaviors regarding use tax. Prior research suggests that taxpayers' compliance intentions are generally associated with their tax reporting

behaviors (e.g., Bobek & Hatfield, 2003; Henderson & Kaplan, 2005; Trivedi et al., 2003). This paper proposes that the use tax reporting behaviors of participants are positively associated with their intentions with respect to voluntary versus enforced compliance. This study further postulates that the consideration of norms with regard to use tax may differ in determining taxpayers' voluntary and enforced compliance, which in turn may impact their reporting behaviors.

The last objective of the current study was to explore the impact of perceived audit probability and sanction severity from state and local governments. Kirchler et al. (2008, p. 215) suggest that the subjective perceptions of audit probability and sanction severity are connected to both voluntary and enforced compliance. Tax compliance can be enforced when audits and sanctions are used to demonstrate the power of authorities (e.g., Chang, Nichols, & Schultz, 1987; Hasseldine, Hite, James, & Toumi, 2007). Audits and sanctions also have effects on voluntary compliance because weak audits and sanctions may undermine the power of state and local governments and thus decrease taxpayers' trust in their government (Kirchler et al., 2008; Verboon & van Dijke, 2011). In other words, audits and sanctions can encourage voluntary compliance by demonstrating the fairness of the tax system to compliant taxpayers (e.g., Rettig, 2011; van Dijke & Verboon, 2010; Verboon & van Dijke, 2007) and enhance enforced compliance by increasing the perceived cost of non-compliance to others (e.g., Iyer et al., 2010; Sanders et al., 2008).

RESEARCH METHODOLOGY

Participants

The participants were 245 business students who were recruited from a large university located in a state with a high sales tax rate. The residents of this state often purchase goods in nearby states with lower and/or no sales tax or over the Internet. This sample was selected because according to a survey by Experience Inc., college students between the ages of 18 to 34 account for $175 billion in consumer spending each year, and 98% of them have online shopping experience.

Procedure

The data were collected during several sessions, and participation in the current study was voluntary. The participants were guaranteed anonymity and completed a questionnaire that included a brief introduction to use tax.

The demographic information pertaining to the participants is summarized as follows. The average age of the participants was 21 years, and 59% of the participants were male. In addition, 66% of the participants had online shopping experience without paying sales tax, and

91% of the participants had shopping experience in a state with no sales tax or a lower sales tax rate. Finally, 70% of the participants had tax-filing experience.

Measures

Voluntary versus enforced compliance

Measures of voluntary and enforced compliance were adapted from Kirchler and Wahl (2010). The voluntary tax compliance scale comprised five items (Cronbach's $\alpha = 0.93$). The enforced tax compliance scale also comprised five items (Cronbach's $\alpha = 0.94$). All of the items were rated on a 7-point scale ranging from 1 ("totally disagree") to 7 ("totally agree"). A higher score on these scales indicates a stronger intention to comply with use tax.

Personal, social, and national norms

Personal norms comprised three items from Wenzel (2005b) (Cronbach's $\alpha = 0.80$), and social norms comprised five items adapted from Blanthorne and Kaplan (2008) (Cronbach's $\alpha = 0.87$). Finally, national norms comprised two items adapted from Bobek et al. (2007) (Cronbach's $\alpha = 0.67$). All of the items were rated on a 7-point scale ranging from 1 ("totally disagree") to 7 ("totally agree"). A higher score on these scales indicates norms that are more supportive of use tax compliance.

Audits and sanctions

The perception of audit probability comprised two items, one adapted from Wenzel (2002) and the other adapted from Bobek et al. (2007) (Cronbach's $\alpha = 0.91$). The perception of sanction severity comprised two items adapted from Verboon and van Dijke (2007) (Cronbach's $\alpha = 0.77$).

Use tax reporting behavior

The questionnaire included three questions intended to capture the use tax reporting behaviors of the participants. First, the participants were asked whether they had ever reported use taxes on purchases from other states with no sales tax or a lower sales tax rate. Second, the participants were asked whether they had ever reported use taxes on purchases over the Internet if sales tax has not been charged. Third, the participants were asked whether they (or their family) had ever reported use taxes. These three items were measured on a binary scale (i.e., "0 = no" and "1 = yes"). The Kuder-Richardson 20 Formula $(KR20)^2$ was 0.50 for this scale.

RESULTS

Hulland's (1999) procedure was performed to examine the measurement and structural model. A confirmative factor analysis (CFA) was first conducted to evaluate the validity of the multiple measures of the constructs before examining their relationships. One social norms item was eliminated because of low factor loading (loading was 0.383)[3]. Consequently, the latent construct of social norms was based on the remaining four items. The factor loadings are displayed in Table 1. As shown in Table 1, the validity of each latent construct was confirmed by significant factor loadings that were above the acceptable threshold (Hair, Anderson, Tatham, & Black, 1998).

Second, the structural model was examined by estimating the paths among the constructs. SEM was conducted to test the relations among the variables with the weighted least squares estimation method using Mplus version 6 (Muthén & Muthén, 1998-2010). The weighted least squares method was suitable for parameter estimation when categorical items were used (e.g., Muthén, 1984; Muthén & Satorra, 1995). Inter-correlations among the latent variables are presented in Table 2.

All of the fit statistics are presented in Figure 2. Overall, the final model provided an excellent fit to the data as shown by different goodness-of-fit indices. As shown in Figure 2, the chi-squared test was significant [$\chi 2$ (df = 252) = 398.086, $p < 0.0001$], the comparative fit index (CFI) was 0.972, the Tucker Lewis Index (TLI) was 0.963, the root mean square error of approximation (RMSEA) was 0.049, and the weighted root mean square residual (WRMR) was 0.539. Values above 0.95 for the CFI and the TLI indicate a good model fit (e.g., Hu & Bentler, 1999). A value below 0.05 for the RMSEA indicates an excellent fit (e.g., Bollen, 1989; Browne & Cudeck 1993). The WRMR is a better measure for continuous and categorical outcomes (Yu & Muthén, 2002). A value under 0.9 for the WRMR indicates a good fit (Yu & Muthén, 2002). In summary, the above results indicated a good fit to the data observed.

Table 1: Standardized Factor Loadings	
Latent Variables and Related Items	**Factor Loadings**
1. Voluntary Compliance	
When I pay my use taxes as required by the regulations, I do so:	
because to me it's obvious that this is what you do.	0.93
to support the state and other citizens.	0.79
because I like to contribute to everyone's good.	0.74
because for me it's the natural thing to do.	0.89
because I regard it as my duty as citizen.	0.88
2. Enforced Compliance	
When I pay my use taxes as required by the regulations, I do so:	
because a great many use tax audits are carried out.	0.87
because the Department of Revenue often carries out audits.	0.92
because I know that I will be audited.	0.85
because the punishments for use tax evasion are very severe.	0.87
because I do not know exactly how to evade use taxes without attracting attention.	0.82
3. Personal Norms	
I think I should honestly report use taxes.	0.80
I think it is acceptable to underreport use taxes. *	0.81
I think evading use taxes is a trivial offence. *	0.65
4. Social Norms	
My spouse or significant other would think it is wrong to evade use taxes.	0.74
My tax return preparer would think it is wrong to evade use taxes.	0.38
My family would think it is wrong to evade use taxes.	0.88
My friends would think it is wrong to evade use taxes.	0.86
My peers would think it is wrong to evade use taxes.	0.85
5. National Norms	
It is socially acceptable to avoid paying use taxes by whatever means possible. *	0.82
Most people in the U.S. will do anything to avoid paying use taxes. *	0.63
6. Audit Probability	
How likely do you think you will get caught when evading use taxes?	0.89
How likely do you think you will be audited if you don't report use taxes?	0.95
7. Sanction Severity	
If you are caught, how severe do you think the sanctions are if you have by accident not reported use taxes?	0.69
If you are caught, how severe do you think the sanction will be when you have not reported use taxes on purpose?	0.92
8. Compliance Behavior	
Have you ever reported use taxes on the purchases from a state that does not have a sales tax or a state with a lower sales tax rate?	0.89
Have you ever reported use taxes on the purchases over the Internet when sales taxes have not been charged?	0.63
As far as you know, have you (or your family) ever reported use taxes?	0.70

* Items were reverse-coded.

Figure 2 also shows the standardized beta coefficients of the paths and their significance level. As shown in Figure 2, personal and social norms had significant effects on the voluntary compliance of taxpayers, whereas there was no significant effect ($p = 0.155$) of national norms on the voluntary compliance of taxpayers. This result suggests that voluntary compliance is largely influenced by the personal norms of taxpayers and somewhat influenced by their social norms. Taxpayers have stronger intentions to voluntarily comply with use tax when compliance behaviors are consistent with their personal and social norms. Figure 2 further shows that the subjective perceptions of audit probability and sanction severity had significant effects on enforced compliance but no significant effect (both $p > 0.25$) on voluntary compliance. This result implies that the perceptions of audit probability and sanction severity are only related to enforced compliance. The effects of social norms on enforced compliance were also significant, which suggests the perception of social acceptance is also a primary determinant of enforced compliance.

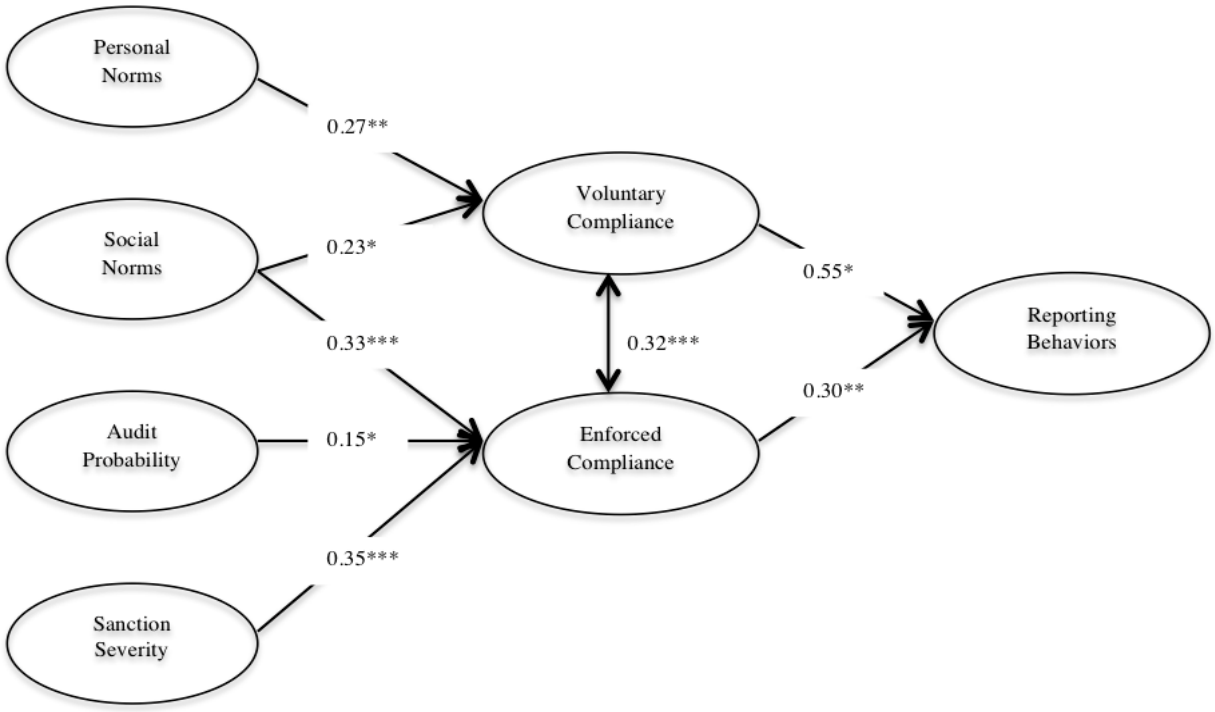
Table 2: Correlation Matrix of Latent Variables (N=245)

Variables	Voluntary Compliance	Enforced Compliance	Reporting Behaviors	Personal Norms	Social Norms	National Norms	Audit Probability
Enforced Compliance	0.52**						
Reporting Behaviors	0.63**	0.52**					
Personal Norms	0.52**	0.33**	0.38**				
Social Norms	0.51**	0.53**	0.55**	0.68**			
National Norms	0.31**	0.25**	0.35**	0.43**	0.31**		
Audit Probability	0.28**	0.40**	0.23*	0.29**	0.38**	0.02	
Sanction Severity	0.32**	0.55**	0.47**	0.26**	0.48**	0.21**	0.40**

* $p < 0.05$
** $p < 0.01$
All p-values are two-tailed.

As shown in Figure 2, the coefficient for the path from voluntary compliance to use tax reporting behavior was larger and more significant than that from enforced compliance to use tax reporting behaviors. This suggests that the use tax reporting behaviors of the taxpayers were largely influenced by the extent of their trust in state and local governments (i.e., voluntary compliance) rather than the power of state and local governments (i.e., enforced compliance).

Figure 2: Results of Structural Equation Modeling



Note: Model fit statistics: χ^2 [df = 252] = 398.086; p < 0.0001; CFI = 0.972; TLI = 0.963; RMSEA = 0.049; WRMR = 0.539.
* = significant, p < 0.05; ** = significant, p < 0.01; *** = significant, p < 0.001. All -values are two-tailed.

DISCUSSION

Inspection of the above results reveals that the relative importance of norms varied across the two forms of compliance with respect to use tax. Specifically, the participants' social norms were highly influential antecedents of both voluntary and enforced compliance. Personal norms were a significant predictor only for voluntary compliance, whereas the perceptions of audit probability and sanction severity were significant factors only for enforced compliance. As expected, the effects of norms, audits, and sanctions were transferred to use tax reporting behaviors via both voluntary and enforced compliance. However, the participants' use tax reporting behaviors were more influenced by their voluntary compliance than enforced compliance. The above results suggest that acceptability within one's social group, obedience to one's personal beliefs, and perceptions of audit probability and sanction severity may significantly influence one's willingness to engage in use tax compliance.

The findings of this study reinforce and extend the previous literature in at least three important ways. First, these results have important implications for policy makers who are

attempting to enhance use tax compliance. Given the importance of use taxes to tax revenues, the improvement of use tax compliance is a particular concern for policy makers (e.g., State Departments of Revenue). The current study found that use tax compliance behaviors were primarily associated with voluntary compliance and somewhat associated with enforced compliance. This finding provides interested parties with insights into the potential importance of enhancing taxpayers' trust. State and local governments should endeavor to enhance their residents' trust because use tax compliance is costly to enforce (Iyer et al., 2010). To reduce compliance costs, providing service-oriented help to taxpayers may be more preferable than enforcement strategies (e.g., audit, sanction, and/or penalty) that involve significant costs. Policies that encourage use tax compliance should shift from frequent audits and severe sanctions towards service-oriented interaction to encourage voluntary compliance (Kirchler, 2007).

Second, the significant influence of social norms on use tax compliance may provide important insights into the effectiveness of education and persuasion in improving compliance (e.g., Kaplan, Newberry, & Reckers, 1997, Trivedi et al., 2003). In an attempt to reinforce use tax compliance, state and local governments should efficiently communicate perceived social norms via the mass media to establish taxpayers' trust of state and local governments. Efforts to persuade or train individuals to comply with use tax should be largely based on social norms.

Third, although prior research has investigated use tax compliance (e.g., Hageman, 2009; Iyer et al., 2010; Jones, 2009; Sanders et al., 2008), this study represents the first attempt to simultaneously consider voluntary and enforced compliance within the "slippery slope" framework. In this regard, this paper responds to a call for more empirical evidence regarding the impact of trust and power in the context of use tax (e.g., Kirchler, 2007; Muehlbacher & Kirchler, 2010).

Due to some limitations, the results of this study should be interpreted with caution. First, this study used self-reported data to elicit the compliance behaviors of the participants. Although this method has been used in previous research (e.g., Hite, 1988) to explore tax compliance, this approach is subject to the social desirability bias of the participants. Furthermore, Hessing, Elffers, and Weigel (1988) found that social norms were associated with self-reported compliance but not with observed compliance. This study was unable to capture the actual use tax reporting behaviors of the participants. However, Hite (1988) posits that both self-reported data and government reported data offer important insights for tax researchers. Future research could mitigate this limitation by investigating observed tax compliance behaviors (e.g., Sanders et al., 2008). The challenge is to develop a methodology for measuring observed behaviors because it is difficult to determine the tax base.

Second, this study used a convenient sample rather than a randomly selected sample. The sample was collected from one university. It is possible that the students who responded were not representative of the population. Future research could extend the scope of this study to more

experienced taxpayers. Such an extension may greatly enhance the generalizability of the findings.

ENDNOTES

1 According to a 1992 Supreme Court ruling (Quill Corporation v. North Dakota), an online retailer is not required to collect sales taxes from customers in a particular state unless it has a physical presence (e.g., a store, business office, or warehouse) in that state. Even when an online retailer does not collect sales taxes, consumers are legally required to self-report their online purchases and remit unpaid taxes (use taxes rather than sales taxes) directly to the state in which the goods are consumed. In other words, individuals are subject to use taxes on their online purchases when sales taxes are not paid.

2 KR20 is equal to Cronbach's Alpha when the items are binary variables (e.g., Lord & Novick, 1968; Traub, 1994).

3 This item is "my tax return preparer would think it is wrong not reporting use tax." As students are less likely to hire a tax return preparer, it is reasonable to drop this item.

REFERENCES

Alm, J., McClelland, G. H., & Schulze, W. D. (1999). Changing the social norm of tax compliance by voting. *Kyklos*, *52*(2), 141-171.

Alm, J., & Melnik, M. I. (2005). Sales taxes and the decision to purchase online. *Public Finance Review*, *33*(2), 184-212.

Alm, J., & Melnik, M. I. (2010). Do eBay sellers comply with state sales taxes. *National Tax Journal, 63*(2), 188-189.

Alm, J., Sanchez, I., & deJuan, A. (1995). Economic and noneconomic factors in tax compliance. *Kyklos*, *48*(1), 3-18.

Alm, J., Sjoquist D. L., & Wallace, S. (2006). *Tax collectibility and tax compliance in Georgia*. Atlanta, GA: Georgia State University, Fiscal Research Center.

Alm, J., & Torgler, B. (2006). Culture differences and tax morale in the United States and in Europe. *Journal of Economic Psychology*, *27*(2), 224-246.

Beaulieu, P. B. (2011). *A reference guide to the sales and use tax law*. Augusta, ME: Maine Revenue Sercice, Sales, Fuel & Special Tax Division.

Bobek, D. D., & Hatfield, R. C. (2003). An investigation of the theory of planned behavior and the role of moral obligation in tax compliance. *Behavioral Research in Accounting*, *15*, 13-38.

Bobek, D. D., Roberts, R., & Sweeney, J. (2007). The social norms of tax compliance: Evidence from Australia, Singapore, and the United States. *Journal of Business Ethics*, *74*(1), 49-64.

Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Ed.), *Testing structural equation models* (pp. 136-162). Newsbury Park, CA: Sage.

Bruce, D., & Fox, W. F. (2001). *State and local sales tax revenue losses from e-commerce: Updated estimates*. Salt Lake City, UT: Institute for State Studies (ISS).

Bruce, D., Fox, W. F., & Luna, L. (2009). State and local government sales tax revenue losses from electronic commerce. *State Tax Notes*, *52*(7), 537-557.

Carnes, G. A., & Englebrecht, T. D. (1995). An investigation of the effect of detection risk perceptions, penalty sanctions, and income visibility on tax compliance. *Journal of the American Taxation Association*, *17*(1), 26.

Chan, C. W., Troutman, C. S., & O'Bryan, D. (2000). An expanded model of taxpayer compliance: Empirical evidence from the United States and Hong Kong. *Journal of International Accounting, Auditing and Taxation*, *9*(2), 83-103.

Chang, O., Nichols, D., & Schultz, J. (1987). Taxpayer attitudes toward tax audit risk. *Journal of Economic Psychology*, *8*, 299-309.

Charles, L. B., & Jaimin, L. (2007). Internet purchases, cross-border shopping, and sales taxes. *National Tax Journal*, *60*(4), 711-725.

Collins, J. H., Milliron, V. C., & Toy, D. R. (1992). Determinants of tax compliance: A contingency approach. *Journal of the American Taxation Association*, *14*(2), 1.

Cook, E., de Seve, C. W., & Evans, M. K. (2002). *Minnesota sales and use tax gap project: final report*. Washington, DC: American Economics Group, Inc.

Cornia, G. C., Sjoquist, D. L., & Walters, L. C. (2004). Sales and use tax simplification and voluntary compliance. *Public Budgeting & Finance*, *24*(1), 1-31.

Cullis, J. G., & Lewis, A. (1997). Why people pay taxes: From a conventional economic model to a model of social convention. *Journal of Economic Psychology*, *18*(2/3), 305.

Fox, W. F., & Murray, M. N. (1997). The sales tax and electronic commerce: So what's new? *National Tax Journal*, *50*(3), 573-592.

Goolsbee, A. (2000). In a world without borders: The impact of taxes on internet commerce. *Quarterly Journal of Economics*, *115*(2), 561-576.

Grasmick, H. G., & Bursik, R. J., Jr. (1990). Conscience, significant others and rational choice: Extending the deterrence model. *Law & Society Review*, *24*: 837-862.

Hageman, A. M. (2009). Understanding the antecedents and consequences of sales & use tax policy: Evidence from three studies. Unpublished doctoral dissertation, University of Central Florida.

Hair, J. F. Jr., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis, 5th ed*. Upper Saddle River, NJ: Prentice Hall.

Hanno, D. M., & Violette, G. R. (1996). An analysis of moral and social influences on taxpayer behavior. *Behavioral Research in Accounting*, *8*, 57-75.

Hasseldine, J., Hite, P., James, S., & Toumi, M. (2007). Persuasive communications: Tax compliance enforcement strategies for sole proprietors. *Contemporary Accounting Research*, *24*(1), 171-194.

Henderson, B. C., & Kaplan, S. E. (2005). An examination of the role of ethics in tax compliance decisions. *Journal of the American Taxation Association*, *27*(1), 39-72.

Hessing, D. J., Elffers, H., & Weigel, R. H. (1988). Exploring the limits of self-reports and reasoned action: An investigation of the psychology of tax evasion behavior. *Journal of Personality and Social Psychology, 54*, 405-413.

Hite, P. A. (1988). An examination of the impact of subject selection on hypothetical and self-reported taxpayer noncompliance. *Journal of Economic Psychology*, *9*(4), 445.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55.

Hulland, J. S. (1999), Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, *20*, 195-204.

Iyer, G. S., Reckers, P. M. J., & Sanders, D. L. (2010). Increasing tax compliance in Washington State: A field experiment. *National Tax Journal*, *63*(1), 7-32.

Jackson, B. R., & Milliron, V. C. (1986). Tax compliance research: Findings, problems, and prospects. *Journal of Accounting Literature*, *5*, 125-165.

Johnson, C., Masclet, D., & Montmarquette, C. (2010). The effect of perfect monitoring of matched income on sales tax compliance: An experimental investigation. *National Tax Journal*, *63*(1), 121-148.

Jones, C. R. (2010). *Understanding and improving use-tax compliance: A theory of planned behavior approach*. ProQuest LLC.

Kaplan, S. E., Newberry, K. J., & Reckers, P. M. J. (1997). The effect of moral reasoning and educational communications on tax evasion intentions. *Journal of the American Taxation Association*, *19*(2), 38-54.

Kaplan, S. E., & Reckers, P. M. J. (1985). A study of tax evasion judgments. *National Tax Journal*, *38*(1), 97-102.

Kirchler, E. (2007). *The economic psychology of tax behaviour*. Cambridge: Cambridge University Press.

Kirchler, E., Hoelzl, E., & Wahl, I. (2008). Enforced versus voluntary tax compliance: The "slippery slope" framework. *Journal of Economic Psychology*, *29*(2), 210-225.

Kirchler, E., & Wahl, I. (2010). Tax compliance inventory TAX-I: Designing an inventory for surveys of tax compliance. *Journal of Economic Psychology*, *31*(3), 331-346.

Lord, F. M., & Novick, M. R. (1968). *Statistical theories of mental test scores*. Reading, MA: Addison-Wesley.

Luna, L. (2004). Local sales tax competition and the effect on county governments' tax rates and tax bases. *Journal of the American Taxation Association*, *26*(1), 67-67.

Mikesell, J. L. (1997). The American retail sales tax: Considerations on their structure, operations, and potential as a foundation for a federal sales tax. *National Tax Journal*, *50*(1), 149-165.

Muehlbacher, S., & Kirchler, E. (2010). Tax compliance by trust and power of authorities. *International Economic Journal*, *24*(4), 607-610.

Murray, M. N. (1995). Sales tax compliance and audit selection. *National Tax Journal*, *48*(4), 515-530.

Murray, M. N. (1997). Would tax evasion and tax avoidance undermine a national retail sales tax? *National Tax Journal*, *50*(1), 167-182.

Muthén, B. (1984). A general structural equation model with dichotomous, ordered categorical, and continuous latent variable indicators. *Psychometrika*, *49*, 115-132.

Muthén, L. K., & Muthén, B.O. (1998-2010). *Mplus user's guide. Sixth Edition*. Los Angeles, CA: Muthén & Muthén.

Muthén, B., & Satorra, A. (1995). Technical aspects of Muthén's LISCOMP approach to estimation of latent variable relations with a comprehensive measurement model. *Psychometrika*, *60*, 489-503.

Nelson, B. M., & Healy, J. C. (2012). *Sales and use tax answer book*. CCH, Inc.

Reckers, P. M. J., Sanders, D. L., & Roark, S. J. (1994). The influence of ethical attitudes on taxpayer compliance. *National Tax Journal*, *47* (4), 825-836.

Rettig, C. P. (2011). Enhancing voluntary compliance through the administration of civil tax penalties. *Journal of Tax Practice & Procedure*, *13*(2), 11-14.

Sanders, D. L., Reckers, P. M. J., & Iyer, G. S. (2008). Influence of accountability and penalty awareness on tax compliance. *Journal of the American Taxation Association*, *30*(2), 1-20.

Steenbergen, M. R., McGraw, K. M., & Scholz, J. T. (1992). Taxpayer adaptation to the 1986 tax reform act: Do new tax laws affect the way taxpayers think about taxes? In J. Slemrod (Ed.), *Why people pay taxes: Tax compliance and enforcement* (pp. 9–37). Ann Arbor: The University of Michigan Press.

Torgler, B. (2003a). Does culture matter? Tax morale in an East-West-German comparison. *FinanzArchiv*, *59*(4), 504-528.

Torgler, B. (2003b). Tax morale in transition countries. *Post-Communist Economies*, *15*(3), 357-381.

Torgler, B. (2003c). To evade taxes or not to evade: That is the question. *Journal of Socio-Economics*, *32*(3), 283-302.

Traub, R. E. (1994). Factors affecting the reliability coefficient. In R. E. Traub (Ed.), *Reliability for the social sciences: Theory and applications* (pp. 98-114). Thousand Oaks, CA: Sage.

Trivedi, V. U., Shehata, M., & Lynn, B. (2003). Impact of personal and situational factors on taxpayer compliance: An experimental analysis. *Journal of Business Ethics*, *47*(3), 175-197.

van Dijke, M. H., & Verboon, P. (2010). Trust in authorities as a boundary condition to procedural fairness effects on tax compliance. *Journal of Economic Psychology*, *31*(1), 80-91.

Verboon, P., & van Dijke, M. H. (2007). A self-interest analysis of justice and tax compliance: How distributive justice moderates the effect of outcome favorability. *Journal of Economic Psychology*, *28*(6), 704-727.

Verboon, P., & van Dijke, M. (2011). When do severe sanctions enhance compliance? The role of procedural fairness. *Journal of Economic Psychology*, *32*(1), 120-130.

Wärneryd, K., & Walerud, B. (1982). Taxes and economic behaviour: Some interview data on tax evasion in Sweden. *Journal of Economic Psychology*, *2*(3), 187–211.

Washington State Department of Revenue. (2006). Department of revenue compliance study. *Research Report, #2006-2, June 2006*.

Washington State Tax Structure Study Committee. (2002). *Tax alternatives for Washington State: A report to the legislature*. Olympia, WA: Washington State Tax Structure Study Committee.

Wenzel, M. (2002). The impact of outcome orientation and justice concerns on tax compliance: The role of taxpayers' identity. *Journal of Applied Psychology*, *87*(4), 629-645.

Wenzel, M. (2004). An analysis of norm processes in tax compliance. *Journal of Economic Psychology*, *25*(2), 213.

Wenzel, M. (2005a). Misperceptions of social norms about tax compliance: From theory to intervention. *Journal of Economic Psychology*, *26*(6), 862-883.

Wenzel, M. (2005b). Motivation or rationalisation? Causal relations between ethics, norms and tax compliance. *Journal of Economic Psychology*, *26*(4), 491-508.

Yu, C.-Y., & Muthén, B. (2002). *Evaluation of model fit indices for latent variable models with categorical and continuous outcomes*. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.

TREND ANALYSIS OF THE POST-EARNINGS ANNOUNCEMENT DRIFT POST-EARNINGS GAP CHART PATTERN: A QUANTITATIVE INVESTIGATION

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ABSTRACT

The purpose of this paper is to present a quantitative trading strategy to take advantage of post-earnings announcement drift (PEAD) in equities through one specific chart pattern called the post-earnings gap. This specific trading strategy is a trend-following system designed to maximize the essence of trend on a quarter to quarter basis produced by the post-earnings gap pattern, and at the same time minimize draw downs when the essence of trend ends. A twenty stock sample portfolio implementing the trend following system is back tested during a trending environment for equities through the first quarter of 2012. The sample portfolio return is then compared to the general market return for the same period. The results of the study conclude PEAD of the post-earnings gap chart pattern exists in equities due to the disposition effect of the mass psychology of investors, and a trend following trading system can be implemented to define post-earnings trend. The trading system in this paper yielded a theoretical return of approximately 1% greater than the average return of the S&P 500, Dow Jones 30, and Nasdaq indexes.

INTRODUCTION

Post-earnings announcement drift (PEAD) is the propensity for stocks to earn positive average abnormal returns following extreme, positive earnings surprises, and for stocks to earn negative average abnormal returns following extreme, negative earnings surprises. The factors behind what variables exactly cause PEAD are debatable. Past research by Hirshleifer, 2007, has proven that a collection of individual naïve, or average investors, play a part in PEAD. However, they do not provide the foundation of trend for PEAD due to a lack of money supply and timing insight. Institutional trading of large traders is likely the main money supply source of PEAD simply based upon the outstanding amount of volume traded in stocks initially after earnings surprises according to a study comparing small and large traders (Shanthikumar, 2003). Nonetheless, the cumulative mass psychology of all investors who hold positions in the stock are vastly more important than any type of particular investor large or small. PEAD is caused by the

disposition effect of the mass psychology of market participants as demonstrated by Frazzini, 2006, in his study of data on mutual fund holdings and the effects of unrealized capital gains and losses.

The disposition effect is the tendency of investors to sell assets that have gained value, otherwise known as "winners," and keep assets that have lost value, otherwise known as "losers". The disposition effect can be explained by the two features of prospect theory: the idea that people value gains and losses relative to a reference point (the initial purchase price of shares), and the tendency to seek risk when faced with possible losses, and avoid risk when a certain gain is possible (Weber 1998). If a company announces an extremely encouraging earnings report, the selling of this winner into the gap-up due to the disposition effect will temporarily depress the stock price from fully rising to its deserved new level. From this lower price base, subsequent returns will be higher. This price pattern is known as an "under reaction" to news and a post-announcement price drift may occur. A gap-up is a break between prices on a chart that occurs when the price of a stock makes a sharp move up or down with no trading occurring in between. Frazzini showed that the post-announcement price drift occurs primarily in winning positions where investors have large unrealized capital gains and losing positions with large unrealized capital losses as reported by Nofsinger, 2011.

The post-earnings gap pattern is a visual charting representation of a stock instantly affected by an earnings surprise, and thus, the disposition effect. There is very little, if any, formal research available about the post-earnings gap pattern. Hence, the object of this study is to quantify a trading system to find the back tested return of the pattern over a specific quarter to quarter time frame. To be considered a post-earnings gap, the gap-up day should be on at least 1.5 times, or 150 percent of, the 50-day simple moving average of daily trading volume based upon a similar gap trading strategy in the book Trade like an O'Neil Disciple, (Morales, 2010) where the author created a trend following strategy implementing longer-term time frames than this study. The outstandingly large volume in the stock is the footprint of institutional traders taking positions that are visually represented on the chart. In this study, the post-earnings gap was defined by the following three characteristics:

- The gap-up must be at least 3% or greater
- The gap-up must be on larger than normal volume of the 50-day simple moving average of daily trading volume.
- The gap-up must meet the criteria to be defined as a "growth stock" listed below:

DATA AND METHODOLOGY

The parameters for the 20 stocks selected for this particular study were modified from William O'Neil's CAN SLIM system from his book, How to Make Money in Stocks, (O'Neil, 2011). The parameters are broad enough to include stocks of almost any market cap and liquidity. Chordia, 2007, explained PEAD occurs in mainly highly illiquid stocks. Depending

upon how one defines illiquidity the majority of stocks selected did have less than 5 million shares of average volume traded per day in this study. However, there were a few exceptions with some companies having over 20 million shares of average volume per day. The foundational parameters required for stock selection based upon the CAN SLIM system include:

- Price: Above $15
- Average Volume: Above 300K
- Return on Equity (ROE): Above 17%
- EPS Growth Quarter over Quarter: Above 25%
- EPS Growth Past Three Years: Above 25%
- Sales Growth Quarter over Quarter: Above 25%
- Sales Growth Past Three Years: Above 25%

The stock selection for this study had to be modified because a statistically significant sample size of stocks did not meet the requirements due in large part to the secular bear market from 2000-2012. "Secular," is a term defining any time period longer than the business cycle with reference to the book Technical Analysis, The Complete Resource for Financial Market Technicians (Kirkpatrick II, 2011). 34-year historical cycles, composed of a 17-year period of dormancy followed by a 17-year period of intensity are likely the best descriptions of secular time frames. The selection parameters were necessary to eliminate any "junk stocks," and in theory, increase the probability of PEAD after an extreme, positive earnings surprise. Stocks selected were considered to be defined as "growth stocks," and had to meet all of the following criteria:

- Price: Above $15
- Average Volume: Above 200K
- Current Volume: Above 200K
- Return on Equity: Above 10%
- EPS Growth Quarter over Quarter: Above 10%
- Sales Growth Quarter over Quarter: Above 10%
- 20-Day Simple Moving Average (SMA): Price Above SMA
- 50-Day Simple Moving Average (SMA): Price Above SMA
- 200-Day Simple Moving Average (SMA): Price Above SMA

Thus, the final sample of 20 stocks, obtained via the TC2000.com Charting Software Package, Gold Membership Subscription, is the focus of the analysis. The fact that PEAD exists regardless if it is caused by individual investors, institutions, or the combined disposition effect of market participants creates tradable opportunities if a quantifiable strategy can be developed with a positive expectancy. The quantifiable strategy implemented in this theoretical, back tested study is a trend-following system. Trend-following can be used on many various time frames for tactical asset allocation as portrayed by Faber, 2007, in his quantitative approach to

tactical asset allocation model. Many successful traders who implement various trend-following system strategies can be further reviewed in the book Trend Following (Covel, 2006). In it Covel provides a plethora of information about the aspects of trend following strategies and specific mechanical systems. The trend following system implemented in this particular study consists of three different scenarios to capture the essence of trend of PEAD:

Scenario 1: - **Buy** the stock at the open on the day of the post-earnings gap pattern.
- If after 4 weeks the stock **Closes Above** the 13-day simple moving average **Sell** the stock upon a **Close Below** the 13-day simple moving average.

Scenario 2: - **Buy** the stock at the open on the day of the post-earnings gap pattern.
- If after 4 weeks the stock **Closes Below** the 13-day simple moving average **Sell** the stock upon a **Close Below** the 34-day simple moving average.

Scenario 3: - **Buy** the stock at the open of the day of the post-earnings gap pattern.
- If after 4 weeks the stock **Closes Below** the 13-day simple moving average **Sell** the stock upon a **Close Below** the 34-day simple moving average. If the stock **Does Not Close** under the 34-day simple moving average before the next earnings date **Sell** the stock at the close of the previous day before the next earnings release.

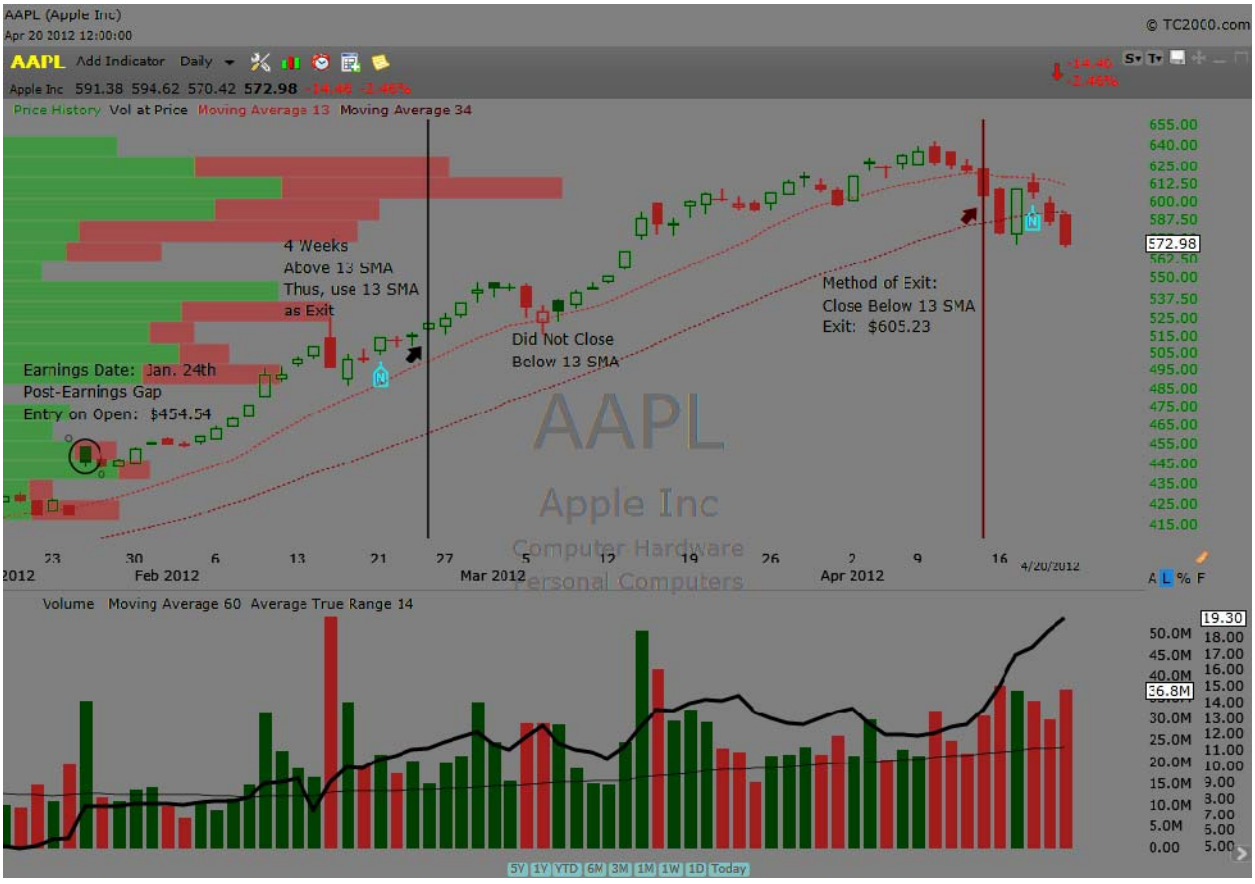
It is important to keep in mind that this trend following trading system from quarter to quarter is only applicable in a trending environment for equities defined by the direction of the 34-day simple moving average of the general market. In this case, the 34-day simple moving average was rising the entire first quarter of 2012. If the direction of the 34-day simple moving average was falling the trading system would be voided and no trades would occur. It is also important to point out the trend-following trading system does not account for commission fees or slippage. Slippage is the difference between the expected price of a trade, and the price at which the broker actually executes the trade. Normally, slippage is just a few pennies, and can actually be eliminated with limit orders. Buying the stock at the open price of the day and selling at the close of the day give quantitative prices which can easily be back tested. However, the actual prices obtained would likely be slightly different for the better or worse, but statistically insignificant toward return percentages assuming the transaction took place at the exact open or close of the market. Hence, the opening and closing of the day were deemed the best option to use when back testing results.

Transaction costs were not included in the results due to their statistical insignificance in this particular study. Professional traders normally use a cost-per-share commission structure similar to what is offered by Tradestation where the commission is $.01 per share with a minimum of $1.00 per trade. The majority of professional traders do not use the well-known discount brokerages such as E*TRADE, Charles Schwab, or TD Ameritrade simply because their commissions are fixed costs. The fixed costs range from $8.95 to $9.99 per trade, and therefore, are more expensive than a cost-per-share commission structure for any trade with

under approximately 1,000 shares traded. In this study, 2,723 shares were bought and then 2,723 shares were sold for a total of 5,446 shares. As mentioned, each trade had a $1.00 commission minimum. Therefore, the 2,723 shares bought cost $32 in commissions and the 2,723 shares sold cost $32 for a total cost of $64. Overall, based upon the 13% portfolio return of just over $13,000 the total commission would be less than 0.5% of the return and unimportant to the objectives of the study.

RESULTS

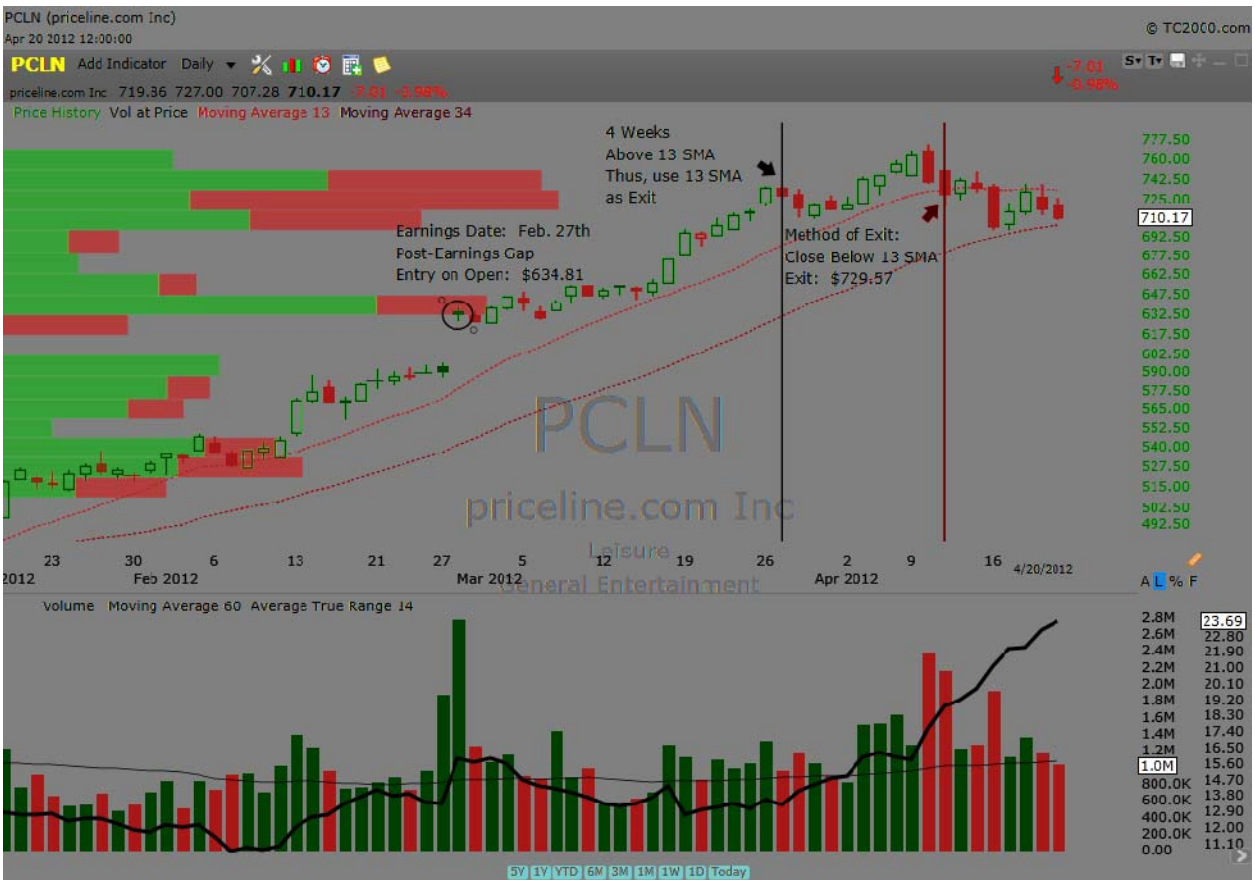
Scenario 1 Example 1: (Chart courtesy of TC2000.com)



Above is the first quarter chart of Apple, (AAPL) which formed a post-earnings gap pattern on January 24th, 2012 after the company announced surprisingly positive earnings. The post-earnings gap is circled below the earnings date and the entry on open **BUY** price of $454.54. After 4 weeks, AAPL **Closed Above** its 13-day simple moving average, therefore, it is an example of scenario 1 of the trading system, and a **Close Below** the 13-day simple moving average would be the method of exit. The vertical red line on the right side of the chart is the

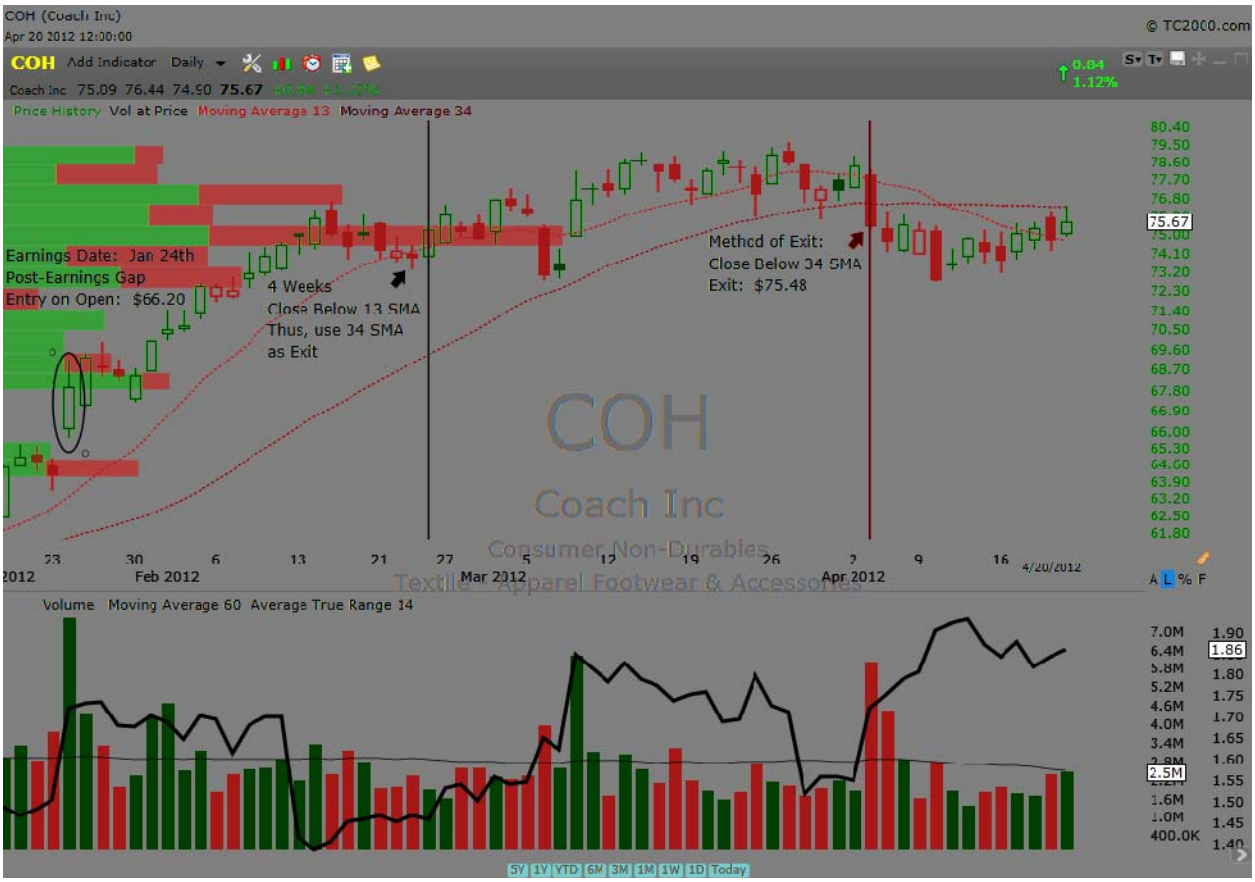
day the stock **Closed Below** the 13-day simple moving average, and thus, would have been **SOLD** at the closing price of the day at $605.23. Hence, the return of the trade would be 33.15% in just under a 3 month holding period.

Scenario 1 Example 2: (Chart courtesy of TC2000.com)



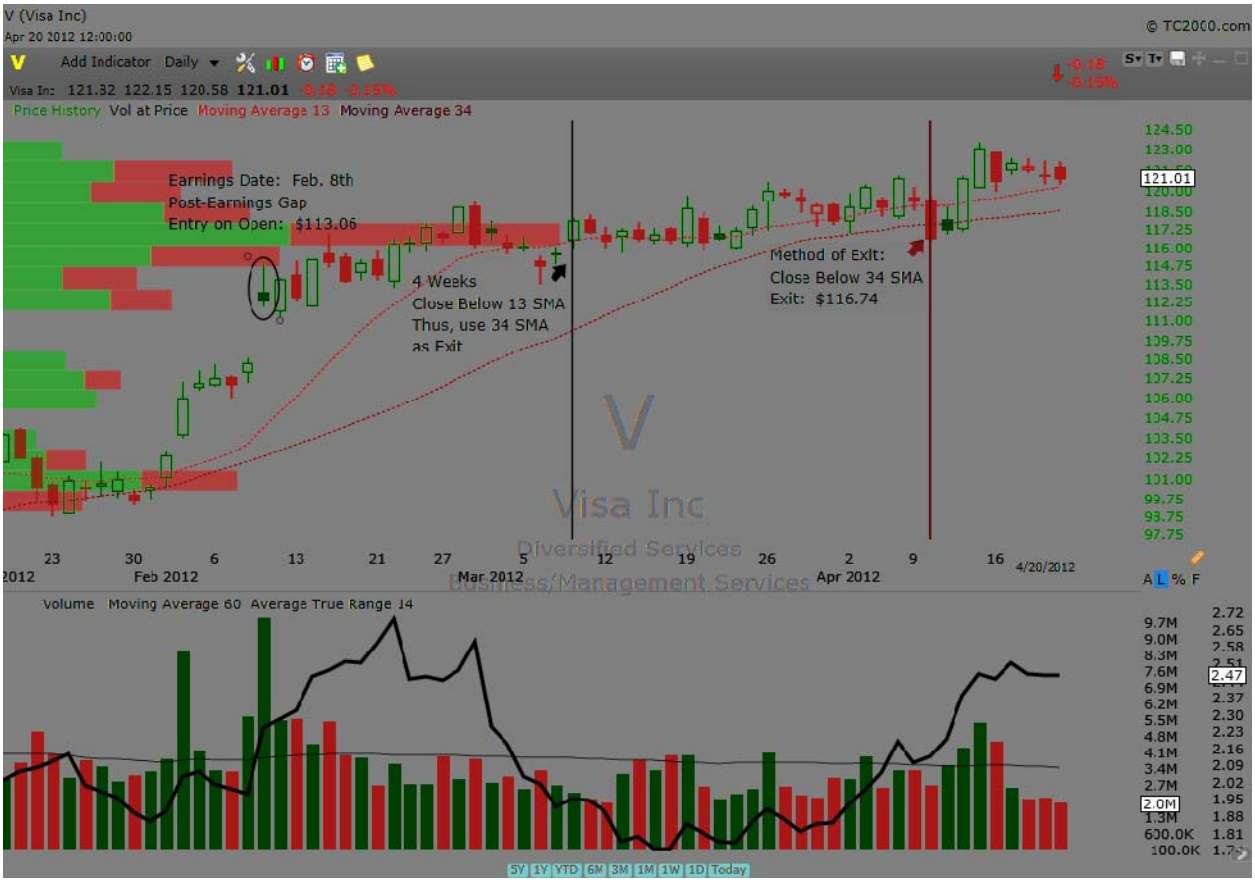
Above is the first quarter chart of priceline.com, (PCLN) which formed a post-earnings gap pattern on February 27th, 2012 after the company announced surprisingly positive earnings. The post-earnings gap is circled below the earnings date and the entry on open **BUY** price of $634.81. After 4 weeks, PCLN **Closed Above** its 13-day simple moving average, therefore, it is an example of scenario 1 of the trading system, and a **Close Below** the 13-day simple moving average would be the method of exit. The vertical red line on the right side of the chart is the day the stock **Closed Below** the 13-day simple moving average, and thus, would have been **SOLD** at the closing price of the day at $729.57. Hence, the return of the trade would be 14.93% in just a 6 week holding period.

Scenario 2 Example 1: (Chart courtesy of TC2000.com)



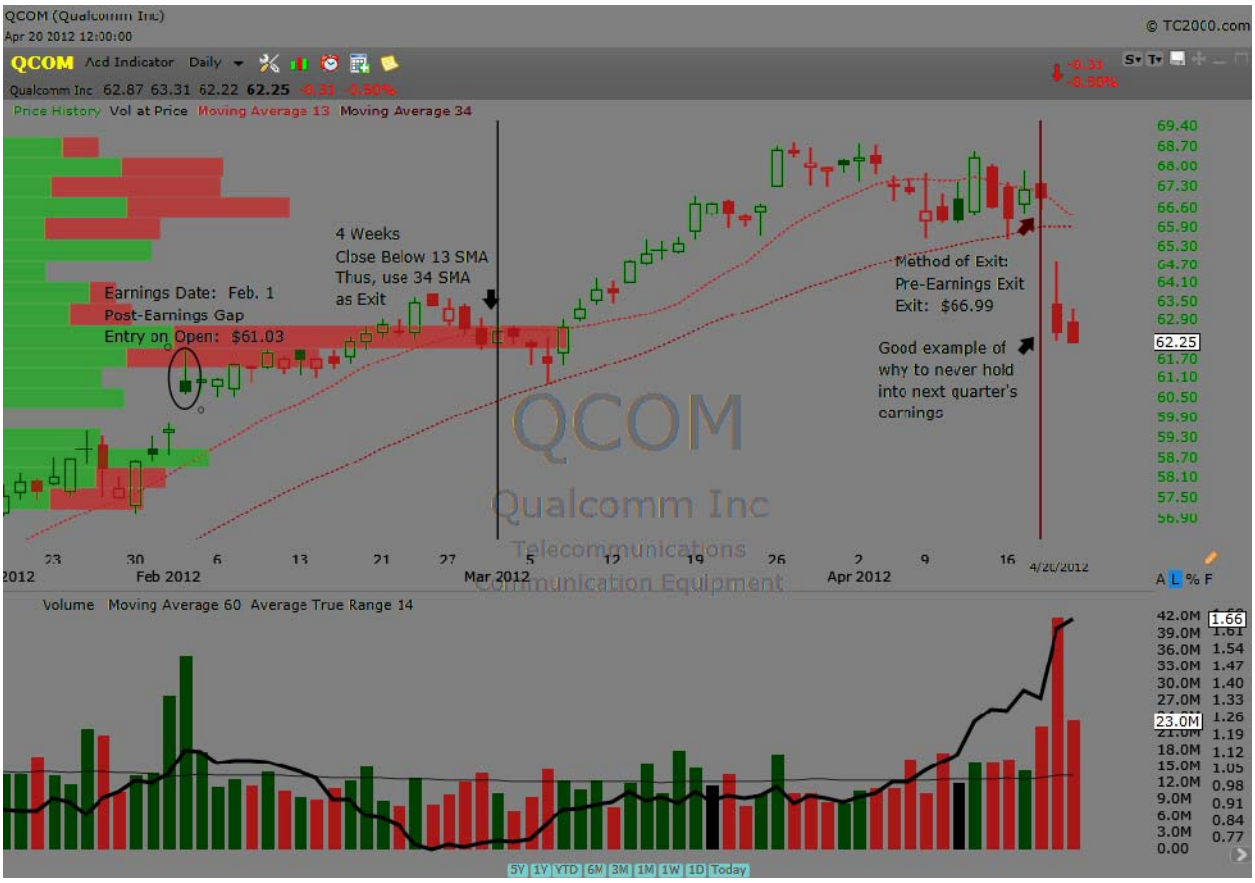
Above is the first quarter chart of Coach, (COH) which formed a post-earnings gap pattern on January 24th, 2012 after the company announced surprisingly positive earnings. The post-earnings gap is circled below the earnings date and the entry on open **BUY** price of $66.20. After 4 weeks, COH **Closed Below** its 13-day simple moving average, therefore, it is an example of scenario 2 of the trading system, and a **Close Below** the 34-day simple moving average would be the method of exit. The vertical red line on the right side of the chart is the day the stock **Closed Below** the 34-day simple moving average, and thus, would have been **SOLD** at the closing price of the day at $75.48. Hence, the return of the trade would be 14.02% in just a 10 week holding period.

Scenario 2 Example 2: (Chart courtesy of TC2000.com)



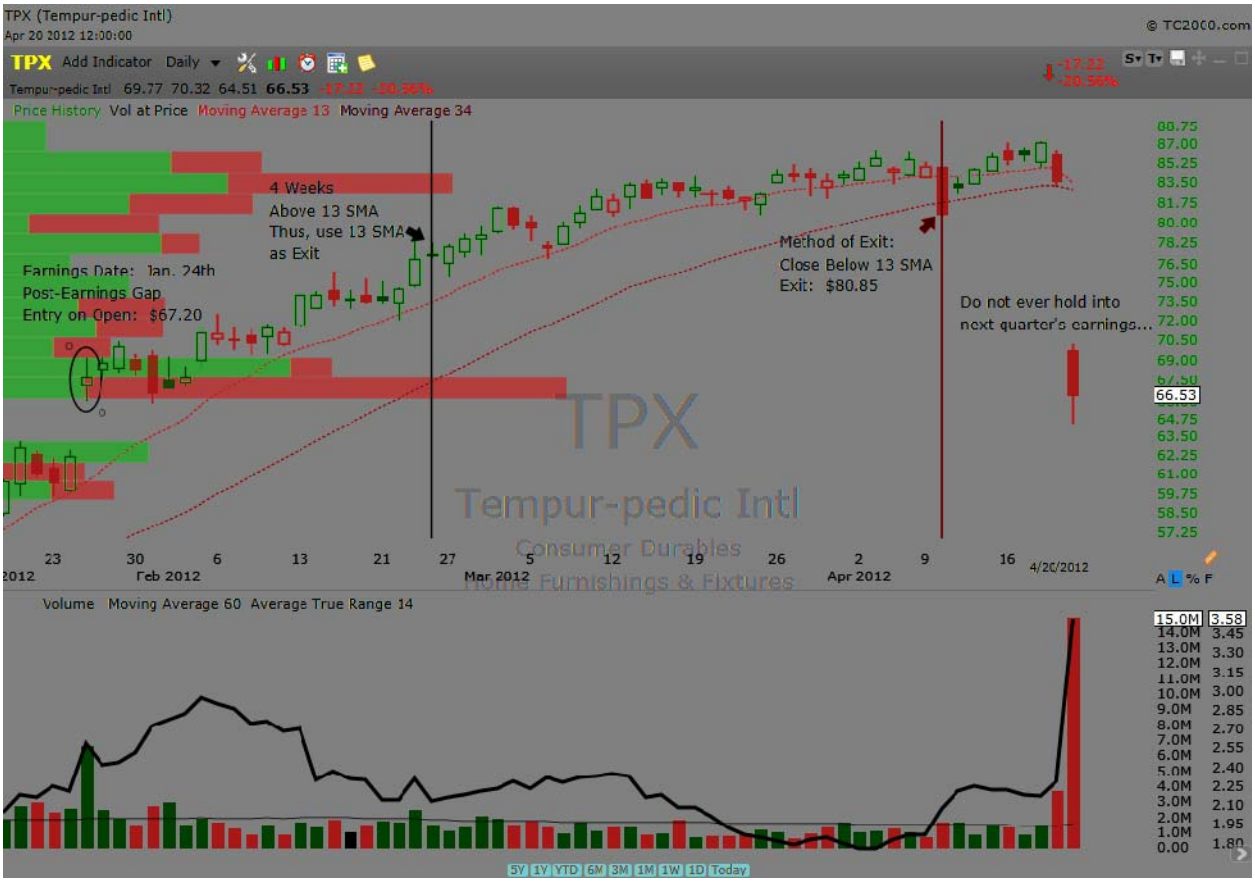
Above is the first quarter chart of Visa, (V) which formed a post-earnings gap pattern on February 8th, 2012 after the company announced surprisingly positive earnings. The post-earnings gap is circled below the earnings date and the entry on open **BUY** price of $113.06. After 4 weeks, V **Closed Below** its 13-day simple moving average, therefore, it is an example of scenario 2 of the trading system, and a **Close Below** the 34-day simple moving average would be the method of exit. The vertical red line on the right side of the chart is the day the stock **Closed Below** the 34-day simple moving average, and thus, would have been **SOLD** at the closing price of the day at $116.74. Hence, the return of the trade would be 3.25% in just a 9 week holding period.

Scenario 3 Example 1: (Chart courtesy of TC2000.com)



Above is the first quarter chart of Qualcomm, (QCOM) which formed a post-earnings gap pattern on February 1st, 2012 after the company announced surprisingly positive earnings. The post-earnings gap is circled below the earnings date and the entry on open **BUY** price of $61.03. After 4 weeks, QCOM **Closed Below** its 13-day simple moving average, however, it never **Closed Below** the 34-simple moving average before the next earnings release. Therefore, QCOM is an example of scenario 3 of the trading system, and the close of the day before its next earnings release would be the method of exit, and thus, would have been **SOLD** at $66.99. Hence, the return of the trade would be 9.77% in just under a 3 month holding period. QCOM is a good example why the system NEVER holds into an earnings release.

Scenario 3 Example 2: (Chart courtesy of TC2000.com)



Above is the first quarter chart of Tempur-pedic, (TPX) which formed a post-earnings gap pattern on January 24th, 2012 after the company announced surprisingly positive earnings. The post-earnings gap is circled below the earnings date and the entry on open **BUY** price of $67.20. After 4 weeks, TPX **Closed Above** its 13-day simple moving average, therefore, it is an example of scenario 1 of the trading system, and a **Close Below** the 13-day simple moving average would be the method of exit. However, that is unimportant, as this example is included to visually demonstrate on the chart why the system NEVER holds into the next earnings release. The system is based upon one quarter to the next. Holding a stock into the subsequent earnings release is gambling, and not a high probability trade like waiting for a post-earnings gap pattern.

There are three tables at the end of this paper, Table 1, Table 2, and Table 3 that illustrate the final results of the study. The tables were formulated through Microsoft excel. Table 1 shows the stock name, symbol, earnings date, entry, exit method, exit, and return for each of the

twenty stocks in the study assuming an equal allocation of 5% to each one. The return of the general market of the first quarter of 2012 is also on Table 1 below the 20 stock portfolio using the Dow Jones 30, the S&P 500, and the Nasdaq. Thus, the return of the study can easily be compared to the return of the general market. The end result clearly shows the back tested trend-following trading system outperformed the general market by roughly 1%. Additionally, the system would have also avoided the drawdown of the general market into the second quarter of 2012 because no trades would have been taken as the market was no longer in the defined trending environment of a rising 34-day simple moving average.

Table 2 shows the stock name, symbol, earnings date, entry, exit method, exit, and return for the top ten performing stocks in the study assuming an equal allocation of 10% to each one. The return of the general market of the first quarter of 2012 is also in Table 2 below the 10 stock portfolio using indices representing the Dow Jones 30, the S&P 500, and the Nasdaq, hereafter known as the "general market". Thus, the return of the study can easily be compared to the return of the general market. These results show the back tested trend-following trading system outperformed the average of the three indexes by just under 10%. If the trend following system trading strategy stock selection parameters could be optimized to only include the top ten performers and reduce diversification, outperformance would be drastically improved. The post-earnings gap pattern could also likely be optimized and better defined to find the stocks with the highest probability of performing PEAD.

The bottom ten performers are not examined independently although they are included in the main list. The focus is on the top ten performing stocks to further study potential characteristics of what may create exceptional trend return and demonstrate theoretical return if the study could be further "optimized." The return of the "worst ten" would still be 4.2% to the positive. It's simply the authors' opinion that more useful may be gleaned focusing time and energy on the characteristics of the best performers.

Table 3 shows the stock name, symbol, earnings date, exit method, exit date, and the holding time for each of the 20 stocks in the study. The average holding period was 7.85 weeks, the average holding period of the top ten performing stocks was 8.8 weeks, and the average holding period of the bottom ten was 6.9 weeks. Therefore, the best winning positions would be held two weeks longer than other positions. Holding onto winners is one of the most crucial elements of trend-following systems as previously mentioned by Covel, 2006, and his coverage of professional traders.

CONCLUSION

In conclusion, it is shown that PEAD exists due to the disposition effect induced upon all market participants when facing large capital gains or losses. This study was designed to take advantage of the trend created from the disposition effect of the little studied post-earnings gap pattern in "growth stocks" from one quarter to the next when investors are holding onto large

capital gains. The trading strategy consists of a trend-following system to better quantify the essence of trend and produce a positive expectancy system. The final results proved to provide a return that is on average 1% higher than the general market return while maintaining those gains into the next quarter when the general market declined. Therefore, the ability to stay in cash in low probability environments will have a dramatic impact on holding onto realized gains. When the market is trending the trend following system should be implemented to enhance return. Conversely, when the market is not trending the trend following system should be in cash for this particular strategy. However, the trend following system should not always be in use and other trading systems are a necessity to supply capital to the markets in non-trending trading environments. This trading system provides the ability to hold onto winning positions so as to harvest as much of the PEAD price drift as possible while at the same time selling loser positions and/or small winnings positions. The combination of these two insights, provided by the trading system, greatly enhances potential return. Thus, maintaining gains during high probability trending environments, and not participating in low probability non-trending environments, is the key to a successful trend-following trading system designed to take advantage of PEAD.

Table 1:

Stock:	**Symbol:**	**Earnings Date:**	**Entry:**	**Exit Method:**	**Exit:**	**Profit/Loss %**
Apple	AAPL	1/24/2012	454.55	13 SMA	605.23	33.14926851
Arctic Cat	ACAT	1/26/2012	23.07	13 SMA	40.01	73.42869528
Acena Retail Group	ASNA	3/1/2012	21.34	13 SMA	21.91	2.6710403
Aspen Technology	AZPN	1/31/2012	20	34 SMA	19.78	-1.1
Buffalo Wild Wings	BWLD	2/7/2012	80.99	34 SMA	87	7.420669218
CA Technologies	CA	1/24/2012	26.01	13 SMA	26.86	3.267973856
Cerner Corporation	CERN	2/7/2012	67.78	13 SMA	76.16	12.36352906
Coach	COH	1/24/2012	66.2	34 SMA	75.48	14.01812689
Chico's FAS	CHS	2/22/2012	14.52	34 SMA	14.98	3.168044077
Cummins	CMI	2/2/2012	111.76	34 SMA	120.12	7.480314961
Coinstar	CSTR	2/6/2012	60.73	34 SMA	61.31	0.955046929
EMC Corporation	EMC	1/24/2012	24.31	13 SMA	29.18	20.03290827
Priceline.com	PCLN	2/27/2012	634.81	13 SMA	729.57	14.92730108
Qualcomm	QCOM	2/1/2012	61.03	Pre-Earnings	66.99	9.765689005
Shuffle Master	SHFL	3/5/2012	15.49	34 SMA	16.51	6.58489348
Seagate Technology	STX	1/31/2012	23.59	34 SMA	26.44	12.08139042
Tempur Pedic	TPX	1/24/2012	67.2	13 SMA	80.85	20.3125
United Rentals	URI	1/25/2012	37.87	34 SMA	41.07	8.449960391
Visa	V	2/8/2012	113.06	34 SMA	116.74	3.254908898
Vmware	VMW	1/23/2012	90.32	13 SMA	98.13	8.647032772
						Total Gain:
						13.04396467
						VS.
2012 Quarter 1						
Index:	**Symbol:**	**Open Date:**	**Open:**	**Exit Method:**	**Close:**	**Profit/Loss %**
S&P 500	SPX	1/3/2012	1258.9	End of Quarter	1408.5	11.88456222
Dow Jones 30	DJIA	1/3/2012	12,221	End of Quarter	13212	8.108992717
Nasdaq	COMPX	1/3/2012	2,657	End of Quarter	3091.6	16.35679338
						Total Gain:
						12.11678277

Stock:	**Symbol:**	**Earnings Date:**	**Entry:**	**Exit Method:**	**Exit:**	**Profit/Loss %**
Apple	AAPL	1/24/2012	454.55	13 SMA	605.23	33.14926851
Arctic Cat	ACAT	1/26/2012	23.07	13 SMA	40.01	73.42869528
Cerner Corporation	CERN	2/7/2012	67.78	13 SMA	76.16	12.36352906
Coach	COH	1/24/2012	66.2	34 SMA	75.48	14.01812689
EMC Corporation	EMC	1/24/2012	24.31	13 SMA	29.18	20.03290827
Priceline.com	PCLN	2/27/2012	634.81	13 SMA	729.57	14.92730108
Qualcomm	QCOM	2/1/2012	61.03	Pre-Earnings	66.99	9.765689005
Seagate Technology	STX	1/31/2012	23.59	34 SMA	26.44	12.08139042
Tempur Pedic	TPX	1/24/2012	67.2	13 SMA	80.85	20.3125
Vmware	VMW	1/23/2012	90.32	13 SMA	98.13	8.647032772
						Total Gain:
						21.87264413
						VS.
2012 Quarter 1						
Index:	**Symbol:**	**Open Date:**	**Open:**	**Exit Method:**	**Close:**	**Profit/Loss %**
S&P 500	SPX	1/3/2012	1258.9	End of Quarter	1408.5	11.88456222
Dow Jones 30	DJIA	1/3/2012	12,221	End of Quarter	13212	8.108992717
Nasdaq	COMPX	1/3/2012	2,657	End of Quarter	3091.6	16.35679338
						Total Gain:
						12.11678277

Table 2:

Stock:	Symbol:	Earnings Date:	Exit Method:	Exit Date:	Hold Time:
Apple	AAPL	1/24/2012	13 SMA	4/13/2012	11 Weeks
Arctic Cat	ACAT	1/26/2012	13 SMA	3/20/2012	9 Weeks
Acena Retail Group	ASNA	3/1/2012	13 SMA	4/4/2012	5 Weeks
Aspen Technology	AZPN	1/31/2012	34 SMA	3/6/2012	5 Weeks
Buffalo Wild Wings	BWLD	2/7/2012	34 SMA	4/4/2012	8 Weeks
CA Technologies	CA	1/24/2012	13 SMA	3/6/2012	6 Weeks
Cerner Corporation	CERN	2/7/2012	13 SMA	3/27/2012	7 Weeks
Coach	COH	1/24/2012	34 SMA	4/3/2012	10 Weeks
Chico's FAS	CHS	2/22/2012	34 SMA	4/9/2012	7 Weeks
Cummins	CMI	2/2/2012	34 SMA	3/22/2012	7 Weeks
Coinstar	CSTR	2/6/2012	34 SMA	4/12/2012	9 Weeks
EMC Corporation	EMC	1/24/2012	13 SMA	4/4/2012	10 Weeks
Priceline.com	PCLN	2/27/2012	13 SMA	4/11/2012	6 Weeks
Qualcomm	QCOM	2/1/2012	Pre-Earnings	4/18/2012	11 Weeks
Shuffle Master	SHFL	3/5/2012	34 SMA	4/10/2012	5 Weeks
Seagate Technology	STX	1/31/2012	34 SMA	3/19/2012	7 Weeks
Tempur Pedic	TPX	1/24/2012	13 SMA	4/12/2012	11 Weeks
United Rentals	URI	1/25/2012	34 SMA	3/20/2012	8 Weeks
Visa	V	2/8/2012	34 SMA	4/10/2012	9 Weeks
Vmware	VMW	1/23/2012	13 SMA	3/6/2012	6 Weeks
					Avg Time:
					7.85 Weeks
					Top Ten:
					8.8 Weeks
					Bottom Ten:
					6.9 Weeks

Table 3:

REFERENCES:

Chordia, Tarun, Sadka, Ronnie, Goyal, Amit, Sadka, Gil and Shivakumar, Lakshmanan, Liquidity and the Post-Earnings-Announcement Drift (March 8, 2007). AFA 2008 New Orleans Meetings Paper. Available at SSRN: http://ssrn.com/abstract=972758 or http://dx.doi.org/10.2139/ssrn.972758

Covel, Michael W. (2006) Trend Following, How Great Traders Make Millions in Up or Down Markets.

Faber, Mebane T., "A Quantitative Approach to Tactical Asset Allocation," (February 17, 2009). *Journal of Wealth Management*, Spring 2007. Available at SSRN: http://ssrn.com/abstract=962461

Frazzini, A. (2006), "The Disposition Effect and Underreaction to News," *The Journal of Finance*, 61: 2017–2046. doi: 10.1111/j.1540-6261.2006.00896.x

Hirshleifer, David A., Myers, James N., Myers, Linda A. and Teoh, Siew Hong, "Do Individual Investors Cause Post-Earnings Announcement Drift? Direct Evidence from Personal Trades" (October 2007). Available at SSRN: http://ssrn.com/abstract=1024046 or http://dx.doi.org/10.2139/ssrn.299260

Kirkpatrick, Charles D., Dahlquist, Julie., (2011) Technical Analysis, The Complete Resource for Financial Market Technicians.

Morales, Gil., Kacher, Chris (2010) Trade Like an O'Neil Disciple, How we made 18,000% in the Stock Market.

Nofsinger, John R. (2011) The Psychology of Investing, 4th ed.

O'Neil, William J., (2011) How to Make Money in Stocks, Complete Investing System.

Shanthikumar, Devin M., "Small and Large Trades Around Earnings Announcements: Does Trading Behavior Explain Post-Earnings-Announcement Drift?" (September 2003). Available at SSRN: http://ssrn.com/abstract=449800 or http://dx.doi.org/10.2139/ssrn.449800

TC2000.com Charting Software Package. (Gold Membership Subscription).

Weber, M., Camerer C.F. "The disposition effect in securities trading: An experimental analysis," (1998) *Journal of Economic Behavior and Organization*.

TESTING FOR INTERNAL CONTROL WEAKNESSES IN ACCELERATED FILERS

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Mohammed I. Ansari, Retired Professor of Economics
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ABSTRACT

In this paper we investigate the determinants of firms' weaknesses in internal control in the accelerated filer group. Previous research identified five determinants of weak internal control for a sample of public firms. This research confines the sample to accelerated filers. Accelerated filers, according to the SEC, are firms with market capitalization between 75 million and less than 700 million dollars. Our sample consists of 114 firms with weaknesses in their internal control matched with a similar number of firms with effective internal control. Six variables were tested: revenue growth, total assets, debt/equity ratio, restructuring, number of segments, and return on assets. The results from ANOVA and logistic regression analyses suggest that firms that restructure their operations, have more segments and/or have lower or negative return on assets tend to have weaknesses in their internal control. We also find that 27% of firms with weak internal control restated their financial statements whereas less than 1% for the control group issued restated statements. Moreover, the correlation coefficient between income from operations and cash flows from operating activities was found to be significant for the control group but not for the experimental group. We interpret this as an indication of a possible earnings management in the financial statements of the experimental group. Our findings are important as they carry significant informational value for regulators, financial statement users, and auditors

INTRODUCTION

The collapse of many large firms such as Enron, WorldCom, and others has led to question the efficacy of regulations and oversight from the regulators and the integrity of the management practices of these firms. These unfortunate incidents indicate that the government regulations and oversight had loopholes and that the companies' management seeking their best interests exploited these loopholes, thus eroding public confidence in financial statements.

The Sarbanes-Oxley Act of 2002 (SOX) represented a landmark in the history of public company financial regulation. Its passage was an attempt to restore public confidence in the financial statements by closing these loopholes and making the financial statements more

reliable. While SOX includes many important sections, Section (404) in particular requires that annual reports for each public company must include an internal control report indicating management's responsibility for establishing and maintaining effective internal controls over financial reporting. The report must also include an end of fiscal year assessment, of the effectiveness of the internal controls structure. Additionally, SOX requires that an external auditor attest to, and report on the assessment made by the management of the company integrated with the financial statement audit. It is worth noting that the requirement of internal control was established by The Foreign Corruption Act of 1977; but has become the focus of the regulatory agencies only recently.

The Committee of Sponsoring Organization (COSO) of the Treadway Commission defined internal control as "a process affected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives" (COSO, 1992). Effective internal control assists companies in providing reliable financial statements, safeguarding the company's assets, promoting efficient operations, and complying with existing laws and regulations. A material weakness in internal control, on the other hand, is a significant deficiency that can result in material misstatement that may not be prevented or detected in a timely manner. Kinney and McDaniel (1989); Doyle, Ge, and McVay (2007a); and Ashbaugh-Skaife, Collins, and Kinney (2007) point out that weak internal controls are likely to increase the probability of material errors in accounting disclosures and/or lead to low quality accounting accruals as a result of intentional earnings management and unintentional accounting errors.

Internal control weaknesses have been the subject of a number of empirical research papers in recent years. Doyle *et. el*. (2007a) examined the determinants of internal control weaknesses and found that firms with internal control weaknesses are generally smaller, less profitable, more complex, fast growing, or undergoing restructuring. Their sample consisted of public firms of different sizes. Given that small firms have limited resources and lack financial and accounting expertise, the cost of establishing an effective internal control system may become prohibitive for these firms. Therefore, firm-size might be a dominant factor in internal control weaknesses for most firms. Large firms, on the other hand, may have different determinants of internal control weaknesses. The purpose of this paper is to test whether the determinants of internal control weaknesses, as noted by Doyle *et al*. (2007a), apply to accelerated filers. The SEC defines accelerated filers as those firms with market capitalization between 75 and less than 700 million dollars. These firms are more likely to have financial resources and accounting expertise. The SEC requires these firms to report on the effectiveness of their internal control over financial reporting for fiscal years ending on or after November 15, 2004.

The remainder of this paper is organized as follows: Section II discusses some related literature and presents our research hypotheses; Section III consists of a discussion on sample

selection and methodology; Section IV presents the empirical findings of our research; and section V provides a summary and conclusions.

RELATED RESEARCH AND HYPOTHESES

Related Research

Recent literature on internal control weaknesses has taken two avenues. The first examines the association between internal control weaknesses and other variables such as earnings management, earnings quality, and information uncertainty. The second avenue looks at the characteristics of firms with internal control weaknesses. Bedard's (2006) findings suggest that SOX requirements improve earnings quality. Ashbaugh *et al.* (2007) found that firms with internal control deficiencies have more complex operations, greater accounting risk, more auditor resignations, fewer resources, and have recently gone through organizational changes. Comparing firms reporting internal control weaknesses with other firms, Chan *et al.* (2007) found some evidence that firms with internal control weaknesses managed their earnings better—suggesting that these firms may improve their internal control to comply with SOX, therefore, reducing accounting errors and improving the quality of reported earnings. Zhang *et al.* (2007) investigated the relationship between audit committee, auditor independence, and internal control weaknesses and found that internal control weaknesses are more likely associated with audit committees that have less financial and nonfinancial accounting expertise. They also found that the findings of internal control weaknesses are more likely associated with auditors that are more independent.

Doyle *et al*. (2007a) examined the determinants of internal control weaknesses over financial reporting for firms of different sizes for the period between 2002- 2005. They found that material weaknesses in internal controls are more likely associated with firms that were smaller, less profitable, more complex, fast growing, or undergoing restructuring. Their findings are consistent with the idea that firms struggle with their financial reporting controls due to lack of resources, to the existence of complex accounting issues, and to facing a rapidly changing business environment. They also found that the strength of the determinants varies depending on the type of material weakness disclosed. Bryan and Lilien (2005) found that material weaknesses were associated with small firms with weaker performance as compared with the control group. Additionally they found that firms with material weaknesses have higher betas or risk coefficients.

Our paper departs from Doyle *et al*. (2007a) paper in three ways. First, their sample represented all companies required to file 10-Ks with the SEC. Included in their sample were large accelerated filers, accelerated filers, non-accelerated filers, and small companies. Our sample consists only of accelerated filers, which are relatively homogeneous in size relative to the heterogeneity with respect to size in Doyle *et al.* (2007a). Given that establishing and

maintaining internal control is costly, accelerated filers are assumed to have sufficient resources to do so while smaller firms have no such advantage. Doyle *et al*. (2007a) found that firms with internal control weaknesses are more likely to be smaller. It is possible that accelerated filers may have different determinants of internal control weaknesses or some of the determinants found by Doyle *et al*. (2007a) are not valid for the group under consideration.

Second, Doyle *et al*. (2007a) selected their sample from firms disclosing weaknesses in their internal control during the period from August 2002 to August 2005. During this period, the SEC extended the implementation of internal control requirements to November 15, 2004 for accelerated filers. While non-accelerated filers and small firms were extended to later dates, most firms voluntarily disclosed internal control information, thus raising the issue of the bias of self-selection.

Lastly, the majority of the firms had little or no experience in establishing and maintaining effective internal control. Consequently, internal control weaknesses may have attributed to the lack of experience. In contrast, our sample represents firms disclosing internal control weaknesses from January 2006 to January 2008. It is assumed that all firms have acquired the necessary experience during this period.

Test Hypotheses

In this section we present a set of hypotheses that we intend to test along with a brief explanation. Firms that experience significant increases in their revenues in a short period of time may need to increase personnel, modify processes, and adjust technology to meet the increased demand for products or services on a timely basis. These changes would mean a need for increased control. Some firms may ignore this need for additional control and even go so far as to override or ignore existing controls. Kinney and McDaniel, (1990), Stice (1991), and Ashbaugh-Skaife, *et al*. (2007) indicated that fast growing firms may outgrow their existing controls and may take time to establish new and better controls. To do this, new personnel, processes, controls, and technology are required to match the sudden growth in revenue. Therefore, our first hypothesis is:

H1: Firms that experience sudden increases in their revenues tend to have Internal control weaknesses.

The establishment of effective internal control as stipulated by SOX requires more resources to implement. It is assumed that large firms, whether measured by market capitalization or total assets, have the resources, expertise and technology, and enjoy economies of scale and, therefore, can satisfy the requirements. Small firms lack these components to mobilize. We, therefore, expect small firms within accelerated files to have weak internal controls. Namely, we

expect the smaller firms in our sample to have weaknesses in their internal controls. Hence, our second hypothesis is:

H2: Small firms within the accelerated filers category tend to have internal control weakness.

Firms operate in a constantly changing environment and need to adapt by restructuring their operations to improve efficiency and reduce their costs to be able to compete in the market. They may have to eliminate unnecessary and unprofitable operations and departments. They may have to terminate employees and/or dispose of groups of assets or segments. They may even acquire new subsidiaries. These changes may not occur simultaneously with changes in appropriate controls. Moreover, restructuring may require a firm to make complex accrual estimates and adjustments (Dechow and Ge 2006). Thus, restructuring may leave some processes without controls or the existing controls may have become ineffective. Therefore we posit the following hypothesis:

H3: Firms that restructure their operations are expected to have weaknesses in their internal control.

The debt/equity ratio (DR) is a measure of the relative proportion of shareholder's equity and total debt used to finance a firm's assets. The DR differs from industry to industry but in general it should be less than 1, though for capital intensive industries like the auto industry it may reach 2. A high DR generally means that a company has an aggressive financing policy. This situation may lead to volatile earnings as a result of modest change in revenue due to the high financial leverage. For short-term debt, a firm has to satisfy its obligations from current assets. For long-term debt, the firm has to pay periodic interest from its earnings stream and pay the principal from fixed assets or retained earnings when it becomes due. If firms have high DRs, they may need to find and mobilize their resources to meet these obligations leaving little or nothing to meet other needs including internal control. This is the basis of our fourth hypothesis:

H4: Firms that have high DRs tend to have weak internal controls.

A firm's profitability is vital for its survival. Profits provide firms with more resources to devote to different needs including internal control. If a firm incurs a loss or its rate of return is very low, it will limit its ability to mobilize resources to establish good control. DeFord and Jiambalvo (1991) found that financial reporting errors are negatively associated with a firm's performance. Krishnan (2005) finds that the existence of a loss is positively associated with weak internal control in firms that change auditors. Therefore, we expect that firms that incur

losses or those with a low rate of return on assets to have weaknesses in their internal control. This is captured in our fifth hypothesis:

H5: Firms with low or negative rates of return on assets as compared with other firms tend to have weaknesses in their internal control.

It is easier for a single firm to establish and monitor internal control than multi-segmented firm. The latter firms have need for sophisticated internal control. The more segments a firm has, whether geographical or business line, the more difficulties the firm has in consolidating information for financial statements, given that some segments or divisions operate in different institutional and legal environments. Thus, it is more likely that firms with multi-segments will have weak internal control systems. Our sixth and final hypothesis is:

H6: Firms with more segments tend to have weak internal controls.

SAMPLE SELECTION AND METHOD OF ANALYSIS

Sample Selection

The SEC categorizes firms that are required to file 10-Ks with them, into four categories according to their size: large accelerated, accelerated, non-accelerated, and small reporting companies. Both accelerated filers and large accelerated filers are required to file a report on the effectiveness of their internal controls and provide control attestation on their 10-K. Accelerated filers must currently file their annual reports on Form 10-K within 75 days of the end of its fiscal year. Beginning with fiscal years ending on or after November 15, 2004 the Management Report and the Control Attestation are to become a part of that annual report.

Accelerated filers generally include companies with an aggregate market value of voting and non-voting common equity held by non-affiliates of the issuer (referred to as "public float") of $75 million but less than $700 million as of the last business day of the issuer's most recently completed second fiscal quarter. The definition of an accelerated filer is based, in part, on the requirements for registration of primary offerings for cash on Form S-3. Previous researchers selected their samples from companies across all four categories. Since the small firms and non-accelerated filers were not required to report on the effectiveness of their internal controls during the period under consideration, they were excluded from our sample. Accelerated filers, on the other hand, have more resources than small and non-accelerated filers and are better able to maintain effective internal controls. Therefore, in the current research the authors chose accelerated filers as their population of interest.

Sample selection consists of two phases: first the database search; and second, the screening process of the 10-Ks. The Accounting Research Manager is the database used to search for companies with internal control weaknesses. The database contains 4,210 companies identified as accelerated filers. The authors searched the database for accelerated filers with material weaknesses disclosed in their 10-Ks between January 2006 and January 2008. This period was chosen for two reasons: to avoid the recession period as a confounding variable; and to exclude the earlier period on the assumption that during that period these companies would not have sufficient experience to maintain effective internal controls. Three terms were used to search the database: "material weaknesses"; "a deficiency or a combination of deficiencies"; and "adverse opinion". The first two terms produced mixed results while the third one resulted in 226 firms that had the term in their 10-Ks.

Phase two began by screening each 10-K, specifically the auditors' opinion on effectiveness of internal controls and management report on internal control. The final sample consisted of 114 companies that disclosed material weaknesses in their 10-K and management report. Other companies had effective internal control, were in the developmental stage, had insufficient data or filed their 10-Ks prior to the period under consideration. Table 1 shows the distribution of these companies across each business sector. It is worth noting that more than one third of the experimental group comes from the technology sector. This finding is consistent with previous research (Bulkeley *et. al*, 2005). It may be difficult for technology firms to establish and monitor good internal control due to the fact that most of the controls in these firms are not easily observed. If some controls are either missing or not working as intended, they will not be detected.

The control group with effective internal controls was obtained to match the same number from each sector in the experimental group. Thus, the final sample includes 114 companies with strong or effective internal controls that represent the control group and 114 companies with weak or ineffective internal controls that comprise the experimental group.

TABLE 1
DISTRIBUTION OF EXPERIMENTAL AND CONTROL GROUPS BY SECTORS

	Experimental group		Control group	
Sector	Number	Percentage	Number	Percentage
Basic Materials	8	7%	8	7%
Consumer Goods	11	9.6%	11	9.6%
Healthcare	15	13.2%	15	13.2%
Industrial goods	9	7.9%	9	7.9%
Services	26	22.8%	26	22.8%
Technology	42	36.9%	42	36.9%
Utilities	3	2.6%	3	2.6%
Total	114	100%	114	100%

Table 2 shows the number and the percentage of firms in both experimental and control group audited by the big four audit firms. The percentage of firms audited by the big audit firms is approximately 37.7% for the experimental group, and 34.2% for the control group.

TABLE 2
DISTRIBUTION OF EXTERNAL AUDITORS FOR EXPERIMENTAL AND CONTROL GROUPS

Audit Firms	Experimental Group		Control group	
	# of companies audited	%	# of companies audited	%
ERNST & YOUNG LLP	15	13.2	24	21.1
Deloitte & Touche LLP	22	19.3	14	12.3
KPMG LLP	20	17.5	19	16.7
PRICEWATERHOUSECOOPERS LLP	14	12.3	18	15.7
Others	43	37.7	39	34.2
Total	114	100%	114	100%

Table 3 classifies the firms according to the type of internal control weaknesses. It is noteworthy that one third of these firms have weaknesses at the company level or in the revenue recognition process. Anderson & Yohn (2002) argued that revenue recognition may be perceived by investors to be more intentional than restatements related to expense items. That is firms appear to manage their earnings through the manipulation of revenue recognition. Dole *et al*. (2007b) found that firms with financial difficulty might decide to have internal control weaknesses over revenue recognition to be able to manage earnings. The same conclusion might apply to firms with internal control weakness at the firm level.

TABLE 3
CLASSIFICATION OF COMPANIES BY INTERNAL CONTROL WEAKNESS

Type of control Weakness	Firm Level	Revenue Recognition	GAAP	Foreign Currency	Complex transactions
Number of Firm	29	17	16	6	20
Type of control Weakness	Tax	Segregation of Duties	IT	Loan control	Others
Number of Firms	22	10	7	7	33

Note that some companies have more than one type of weaknesses

We obtained the firms' data pertaining to the following: total assets for the year of disclosure; total revenues for the year of disclosure and previous year; and number of segments. Return on assets was computed by obtaining net income for the disclosure year scaled by average total assets. Firms that restructure their operations usually incur charges. And there is a

positive relationship between the amount of charges and the magnitude of restructuring. Therefore, we used the amount of charges as a proxy for restructuring. Restructuring charges were scaled by total assets. The DR was computed for the same year. We also collected income from operations and cash flows from operating activities adjusted for extraordinary items for both experimental and control groups. All these variables were obtained from 10-Ks of both experimental and control groups. Tables 1, 2 & 3 show either sector classification, external auditors' distribution or type of internal control weaknesses for both experimental and control groups.

Method of Analysis

Using contrasts, a one-way ANOVA was conducted with revenue growth, total assets, DR, number of segments, restructuring, and return on assets as dependent variables. The factor or independent variable was the experimental group. To calculate the percentage of revenue growth, the following formula was used

$$\frac{R_t - R_{t-1}}{R_{t-1}}$$

Let us denote a variable, say, revenue growth with X_{ij}, where i refers to a given firm (i = 1,2,…,n) and j refers to a given group (experimental or control), (j = 1,2,…,J). We denote each variable's mean with $\overline{X}_j$ and the mean of all means or grand mean with $\overline{X}$. The essence of an analysis of variance technique is very simple. First, a firm's variable, say, revenue growth, is assumed to differ from the mean revenue growth for the group over the entire sample period, $\overline{X}_j$ due to chance. Second, the mean revenue growth of a given group differs from the mean revenue growth of all firms (grand mean) due to a difference in control (experimental or control). Let us call the former a chance effect and the latter the control effect. If the chance effect is overwhelmed by the control effect, then we reject the null hypothesis that means of the two groups are equal. By implication this means accepting the alternative hypothesis that the two groups differ significantly due to difference in control.

In order to carry out the test we must compute the chance effect and the control effect and compare the two. The former is obtained by computing the sum of squares within or SSW and the latter by the sum of squares between or (SSB), as follows:

$$SSW = \sum\sum (X_{ij} - \overline{X}_j)^2 \quad \text{…….. (1), and}$$

$$SSB = \sum n_j (\overline{X}_j - \overline{X})^2 \quad \text{…….. (2)}$$

These two quantities are then divided by their respective degrees of freedom, $n_j - J$ and $J - 1$ to obtain mean sums of squares, MSW and MSB, respectively. The appropriate test statistics is given by the following F-test.

$$F_{J-1,n_j-J} = \frac{MSB}{MSW} \quad \ldots\ldots\ldots (3)$$

In order to check the robustness of our results from the ANOVA analysis we also estimated a logistic regression with the experimental group as the dependent variable and revenue growth, total assets, DR, number of segments, restructuring, and return on assets, as the independent measures in our model.

The general form of the experimental group was D = 1 and the control group was D = 0. The independent variable is assumed to equal 1 for experimental group and 0 for control group. We also report the sample means, standard deviations, and scale inter-correlations. All statistical tests were performed using SPSS.

EMPERICAL RESULTS

Results from One-Way ANOVA Test

A one-way ANOVA test was conducted with group (Control and Experimental) as the categorical variable and revenue growth, total assets, DR, number of segments, restructuring, and return on assets as the dependent variables. If the omnibus F-test for a given dependent variable is significant, it indicates a real difference between the means of the control and experimental groups; otherwise there is no difference between the control and experimental groups.

As shown in Table 4, the F-tests for dependent variables, revenue growth, total assets and DR ratio were insignificant, with values of 0.52, 0.06 and 2.30 respectively. The results indicate that these differences were due to sample fluctuations or sampling error. However, restructuring, number of segments, and return on assets were significant, with F-test values of 6.6, 9.6 and 6.3 respectively. With the exception of firm size and growth rate, the findings of this research are consistent with Doyle *et al.* (2007). As expected, firms that restructured to adapt to the business and economic environment by downsizing their operations, departments, and reducing their employees, may not be able to adjust their internal control in time to manage the change. Moreover, restructuring may involve difficult accrual estimations which, when coupled with lack of sufficient staff, may lead to internal control deficiency (Doyle *et al*., 2007a). The second significant factor is number of segments. The results suggest that the greater the number of segments the more likely the firm is to have internal control weaknesses as different segments may well require more controls. Moreover, the more geographically dispersed the segments, the more likely the existence of internal control difficulties. Firms that are spread over several countries and operate in different legal and economic environments may find it difficult to

compile their financial statements and maintain effective internal control. Finally, firms with low or negative return on assets may not find enough resources to devote to internal control.

TABLE 4
RESULTS OF ONE-WAY ANOVA FOR CONTROL AND EXPERIMENTAL GROUPS

		Sum of Squares	df	Mean Square	F	Sig.
RevGrow	Between Groups	.350	1	.350	.517	.473
	Within Groups	153.223	226	.678		
	Total	153.573	227			
TotAss	Between Groups	7.033E9	1	7.033E9	.056	.812
	Within Groups	2.816E13	226	1.246E11		
	Total	2.817E13	227			
RetonAss	Between Groups	.374	1	.374	6.299	.013
	Within Groups	13.432	226	.059		
	Total	13.806	227			
Restruct	Between Groups	.001	1	.001	6.590	.011
	Within Groups	.028	226	.000		
	Total	.028	227			
Segments	Between Groups	24.018	1	24.018	9.637	.002
	Within Groups	563.246	226	2.492		
	Total	587.263	227			
DR	Between Groups	347.602	1	347.602	2.255	.135
	Within Groups	34836.536	226	154.144		
	Total	35184.138	227			

The previously mentioned factors may be unique to accelerated filers compared with the factors found by Doyle *et al*. (2007a). Faced with limited resources, small firms may not be able to afford or establish effective internal control. Moreover, firms that experience sudden growth in revenue may not be able to make the necessary required changes in internal control.

However, the above situation may not apply to accelerated filers for two reasons. First, given the scale of these firms, it is likely that they will not experience a sufficiently large increase in revenue that would require significant adjustments in their internal control. Additionally, even if they were to experience a significant increase in revenue, it is likely they will be able to adjust their internal control relatively quickly due to the availability of the required resources. The third variable, DR, was found to be insignificant. The finding suggests that there is no difference between the experimental and control groups. That is, the F-test for the DR is 2.3 and the P-value is 0.14. Tables 5-A and 5-B show descriptive statistics for both experimental and control groups.

TABLE 5-A DESCRIPTIVE STATISTICS FROM ONE-WAY ANOVA FOR THE CONTROL AND EXPERIMENTAL GROUPS-MEANS AND STD DEVIATION					
		N	Mean	Std. Deviation	Std. Error
Revgrow	.00	114	.2158	.54263	.05082
	1.00	114	.2942	1.03029	.09650
	Total	228	.2550	.82252	.05447
Totass	.00	114	342959.6140	3.55549E5	33300.18597
	1.00	114	354067.5614	3.50430E5	32820.80286
	Total	228	348513.5877	3.52264E5	23329.27672
RetonAss	.00	114	-.0079	.17392	.01629
	1.00	114	-.0890	.29768	.02788
	Total	228	-.0485	.24661	.01633
Restruct	.00	114	.0026	.00729	.00068
	1.00	114	.0064	.01384	.00130
	Total	228	.0045	.01120	.00074
Segments	.00	114	1.9912	1.44819	.13564
	1.00	114	2.6404	1.69918	.15914
	Total	228	2.3158	1.60843	.10652
DR	.00	114	1.3225	2.16395	.20267
	1.00	114	3.7920	17.42427	1.63193
	Total	228	2.5572	12.44975	.82450

Results from Logistic Regression

Table 6 contains the results of the logistic regression analysis. The logistic regression confirmed the results of the one-way ANOVA testing. Only the return on assets, the number of segments, and the presence of the restructuring variables are found to be significant. The Wald tests indicated a p-value of .03 for return on assets, p-value = .01 for restructuring, and p-value = .01 for number of segments. Chi-square, Hosmer and Lemeshow goodness of fit is 10.6 with significance equal to .22, indicating support for the model. The test indicates an acceptable fit of the model to the data. Table 7 presents means, standard deviations, and zero-Order Pearson Correlations for all variables.

The results suggest that there is a significant difference between these groups with respect to the restructuring, number of segments, and return on assets variables. Firms with internal controls weaknesses, on the other hand, did not significantly differ from those firms with effective internal controls with respect to total assets, revenue growth, and the DR. The results of this research differ from Doyle *et al.* (2007a) in that firm size and rapid growth were found to be insignificant. Therefore, the determinants of internal control weaknesses for accelerated filers differ from those other firms.

Table 5-b
Descriptive Statistics FROM One-Way ANOVA for the Control and Experimental Groups – CONFIDENCE INTERVAL FOR MEAN

		95% Confidence Interval for Mean			
		Lower Bound	Upper Bound	Minimum	Maximum
RevGrow	.00	.1151	.3165	-.39	3.39
	1.00	.1030	.4854	-1.00	10.22
	Total	.1477	.3623	-1.00	10.22
TotAss	.00	276985.9396	408933.2884	7659.00	2354326.00
	1.00	289043.6314	419091.4914	11480.00	2075691.00
	Total	302543.9592	394483.2162	7659.00	2354326.00
RetonAss	.00	-.0402	.0243	-.99	.18
	1.00	-.1442	-.0337	-2.02	.16
	Total	-.0806	-.0163	-2.02	.18
Restrict	.00	.0013	.0040	.00	.04
	1.00	.0038	.0090	.00	.08
	Total	.0031	.0060	.00	.08
Segments	.00	1.7225	2.2599	1.00	9.00
	1.00	2.3251	2.9556	1.00	7.00
	Total	2.1059	2.5257	1.00	9.00
DR	.00	.9210	1.7240	-3.46	12.95
	1.00	.5588	7.0251	-7.03	128.66
	Total	.9326	4.1819	-7.03	128.66

TABLE 6
RESULTS OF LOGISTIC REGRESSION MODEL WITH THE ONTROL AND EXPERIMENTAL GROUPS AS THE BINARY DEPENDENT VARIABLE, (N = 228).

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	RevGrow	.176	.240	.537	1	.464	1.192
	TotAss	.000	.000	.382	1	.537	1.000
	RetonAss	-1.570	.754	4.333	1	.037	.208
	Restruct	39.559	16.242	5.933	1	.015	1.515E17
	Segments	.254	.094	7.372	1	.007	1.290
	DR	.024	.024	1.060	1	.303	1.025
	Constant	-.991	.302	10.780	1	.001	.371
a. Variable(s) entered on step 1: RevGrow, TotAss, RetonAss, Restruct, Segments, Dr.							

TABLE 7

MEANS, STANDARD DEVIATIONS, AND ZERO-ORDER PEARSON CORRELATIONS

		Constant	RevGrow	TotAss	RetonAss	Restruct	Segments	Dr
Step 1	Constant	1.000	-.262	-.434	.123	-.257	-.667	-.041
	RevGrow	-.262	1.000	.025	.102	.108	.073	.032
	TotAss	-.434	.025	1.000	-.203	.057	-.085	-.179
	RetonAss	.123	.102	-.203	1.000	.017	.029	.060
	Restruct	-.257	.108	.057	.017	1.000	.022	.018
	Segments	-.667	.073	-.085	.029	.022	1.000	-.005
	DR	-.041	.032	-.179	.060	.018	-.005	1.000

It is worth-noting that 27% of the firms in the experimental group have their financial statements restated while only 1% of the control group restated their financial statements. Firms issued abridged financial statements as a result of errors whether intentional or unintentional. Dechow, Saloan and Sweeney (1996) pointed out that SEC is likely to investigate only those firms where the probability of requiring a restatement is fairly high due to the substantial cost of such investigations. Richardson, Tuna and Wu (2002) concluded that firms that have restated earnings can be characterized as firms that knowingly and intentionally engage in earnings manipulation. They documented that firms issuing restated financial statements represent an appropriate setting to examine earnings management. Based on their findings, we roughly measured the earnings management. It is reasonable to assume that the difference between income from operations and cash flows from operating activities – adjusted for extra-ordinary items- should remain within a specific range for a specific population. Therefore, if two samples are drawn from the same population, the correlation coefficients for both samples should be equal. If they are not equal, we conclude that they are drawn from different populations.

The Pearson correlation coefficients for income from operations and cash flows from operating activities were computed for both experimental and control groups. The experimental group coefficient of 0.16 is insignificant with p–value equal to 0.10, while the coefficient of 0.46 for the control group is significant with p-value of 0.0. The results indicate that these groups belong to different populations and suggest that because the correlation coefficient for the experimental group is much lower than that for the control group, it is possible that the financial statements of the experiential group may have been subject to manipulation.

SOX, section 404 seems to put financial pressure, not only on small firms, but on accelerated filers as well. Some firms may intentionally relax some controls in order to manage their earnings. Other firms may find it difficult to attract qualified members to serve on the Board of Directors due to increased liability and the strict independence standard imposed by SOX. The cost of hiring directors as percentage of net sales increased significantly after the enactment of SOX (Link, Netter, and Yang 2007). Moreover, external audit fees increased after the implementation of SOX. Eldridge and Kealey (2005) documented significant increases in

audit fees for all firms while Iliev's (2010) findings suggested that audit fees increased more for accelerated filers than other firms.

The above results suggest that accelerated filers that have more segments, have restructured their operation and/or have low or negative return on assets tend to have weaknesses in their internal controls. Given that most of the costs associated with internal control are fixed (such as audit fees and salaries of qualified accounting personnel), the existence of a low return on assets, restructuring costs, and additional segments deprive accelerated filers from resources needed to establish and maintain good internal control. It is possible that they might sacrifice the proper segregation of duties by firing qualified employees in the internal audit, accounting, finance and IT departments to reduce expenses. Qualified employees usually receive higher salaries due to their knowledge and skill in dealing with complex accounting standards and their application. Skilled employees in IT departments are needed to implement effective controls in a computerized environment.

SUMMARY AND CONCLUSIONS

Previous research documented that firms with weak internal controls tend to be smaller, less profitable, more complex, rapidly growing, or undergoing restructuring. Research also documented correlation among these variables. As Doyle *et al*. (2007) suggested firm's size was a dominant factor. In this paper, we chose our sample from accelerated filers. They included companies with an aggregate market value of voting and non-voting common equity held by non-affiliates of the issuer (referred to as "public float") of $75 million but less than $700 million. Our sample consisted of 114 firms with weaknesses in their internal control matched by 114 firms with strong internal control as the control sample. Using a one-way ANOVA and logistic regression analyses, we found the number of segments, restructuring, and return on assets variables are significant while the total assets, DR, and fast revenue growth variables are not significant. The findings suggest that the more segments the firm has the higher the probability that it has weak internal control. Moreover, if the firm restructured its operations, it will not be able to alter its internal control in time, and firms with low or negative return on assets will lack the necessary resources to ensure good internal control. We documented that a high percentage of firms with weak internal controls restated their financial statements. Moreover, we found a weak correlation between cash flows from operation activities adjusted for extraordinary items and income from operations for weak internal control firms relative to the strong correlation found for the control group, suggesting that the experimental group may be subject to earning management.

The main findings of our research are that accelerated filers with more segments, those that have restructured, and/or those possessing low or negative returns on assets are likely to have weak internal control and therefore, may publish unreliable financial information. One limitation of this research is that these findings may apply only to accelerated filers and not to

other firms which are characterized by SEC as larger accelerated filers, non-accelerated filers, and small firms. These firms may have different characteristics depending on the resources available for internal control. The other limitation is that we have used only operational variables in our model, ignoring other variables. Our findings are important as they carry significant informational value for regulators, financial statement users, and auditors. Future research may focus on categories other than the accelerated filers such as large accelerated filers. Additionally it might focus on the existence of weak internal control as an indicator for future bankruptcy

REFERENCES:

Anderson, Kristen L. and Teri Lombardi Yohn, (2002). "The effect 10-K restatements on firm value, information asymmetries, and investor reliance on earnings." Georgetown University. Washington D.C., Working paper.

Ashbaugh-Skaife, H., Collins, D., and Kinney, W. (2007). The discovery and reporting of internal control deficiencies prior to SOX-mandated audits." *Journal of Accounting and Economics*, Volume 44, issue 1-2. PP 16-192.

Bedard, J. (2006). "Sarbanes Oxley internal control requirements and earning quality" University Laval, Quebec, Working paper.

Bryan, S. and Lilien, S. (2005). "Characteristics of firms with material weaknesses in internal control: An assessment of Section 404 of Sarbanes Oxley". Wake Forest University and City University of New York. Working paper.

Bulkeley, William, M. and Robert Tomsho. (2005). "Kodak to Get Auditors' Adverse View." Wall Street journal, January 27, p 7.

Chan, Kam C. Barbara R. Farrel, & Pichenh Lee, (2007). "Earning management of firms reporting material internal control weaknesses under section 404 of the Sarbanes-Oxley Act," Pace University, New York, Working paper,

The Committee of Sponsoring Organization (COSO), (1992). Internal Control— Integrated Framework.

Jap Efendi, Anup Srivastava, and Edward P. Swanson, (2007). "Why do corporate managers misstate financial statements? The role of option compensation and other factors." *Journal of Financial Economics*, Vol. 85, N. 3, 2007, pp. 667-708.

Dechow, P.M., and W. Ge. 2006. "The persistence of earnings and cash flows and the role of special items: Implications for the accrual anomaly*." Review of Accounting Studies*, Vol.11, pp. 253-296

Dechow, P., Saloan, R. and Sweeney, A (1996), "Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC." *Contemporary Accounting Research,* 13 (1996): 1-36.

DeFond, M., Jiambalvo, J., (1991). "Incidence and circumstances of accounting errors." *The Accounting Review* vol. 66, issue 3, 643-655.

Doyle, J., Ge, W. and McVay, S. (2007a). "Determinants of weaknesses in internal control over financial reporting and the implications for earnings quality." *Journal of Accounting & Economics* (JAE), September. Vol. 44, pp.193-223.

Doyle, J., Ge, W. and McVay, S.. (2007b). "Accruals quality and internal control over financial reporting." *The Accounting Review*, Vol. 82, pp. 1141-1170, October 2007

Eldridge, Susan W. and Kealey T. Burch, (2005). Sox costs: auditor attestation under Section 404, University of Nebraska at Omaha, Working paper.

Ge, W. and S. McVay. 2005. "The disclosure of material weaknesses in internal control after the Sarbanes Oxley Act." *Accounting Horizons* 19 (3): 137-158.

Ilieve, Peter, (2010). "The effect of SOX section 404: Costs, earnings quality and stock prices." *Journal of Finance*, Vol. 64, No. 3, pp. 1163-1196, June.

Kinney, W.R., Jr. and McDaniel, L. (1989). "Characteristics of firms correcting previously reported quarterly earnings." *Journal of Accounting & Economics* 11, 71-93.

Kinney, W., M. Shepardson. (2011). "Do control effectiveness disclosures require SOX 404(b) internal control audits? A natural experiment with small US public companies." *Journal of Accounting Research* 49 (2): 41-448.

Krishnan, Gopal V. and Gnanakumar Visvanathan, (2007). "Reporting internal control deficiency in post-Sarbanes-Oxley era: The role of auditors and corporate governance." *International Journal of Auditing,* Vol. 11, pp. 73-90

Link, James, Jeffery M. Netter, and Tina Yang, (2007). "The effects and unintended consequences of Sarbanes-Oxley Act and its era, on the supply and demand for directors" University of Georgia, Atlanta, working paper.

Mirta, Santanu, (2009). "Pervasiveness, severity, and remediation of internal control material weaknesses under SOX section 404 and audit fees." *Review of Accounting and finance*, Vol. 8, No. 4, pp. 369-387.

Munsif, Vish, K. Raghunandan, Dasaratha V.Rama, and Meghna Singhvi, (2011). "Audit fees after remediation of internal control weaknesses." *Accounting Horizon* Vol. 25, No. 1, pp. 87- 105.

Public Company Accounting Oversight Board (PCAOB), (2004). "Auditing Standard No. 2 – An audit of internal control over financial reporting performed in conjunction with an audit of financial statements".

Raghunandan, K. and R. Dasaratha. 2006. "SOX section 404 material weakness disclosures and audit fees." *Auditing* 25 (1):99-114.

Richardson, Scott, Irem Tuna and min Wu (2002). "Predicting earnings management: The case of earnings restatements." The Wharton School, University of Pennsylvania Working paper.

Securities and Exchange Commission (SEC). (2005b). "SEC votes to propose changes in filing deadlines and accelerated filer definition; postpone 404 compliance date for non-accelerated filers; propose issuing Section 28(e) Interpretive Guidance." Press Release 2005-134, September 21.

Stice, J. 1991. "Using financial and market information to identify pre-engagement factors associated with lawsuits against auditors." *The Accounting Review* 66 (3), 516-33.

The Senate and House of Representatives of the United States of America (U.S. Congress). 2002. Sarbanes-Oxley Act of 2002. Public Law 107-204, 107th Congress.

Zhang, Y., J. Zhou, and N. Zhou. (2007). "Audit committee quality, auditor independence, and internal control weaknesses." *Journal of Accounting and Public Policy* 26, pp. 300-327.

ON THE TRENDS IN CASH HOLDINGS

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ABSTRACT

From 1970 to 2006, the average cash-to-assets ratio for young manufacturing firms has increased by 1.01% per year, while for mature firms the increase is a mere 0.07%. We investigate this difference in cash holdings and find that cash has a negative impact on the future market share growth of the mature firms, evidence that can better explain the unwillingness of such firms to hold precautionary cash as they face increasingly more volatile cash flows in an imperfect capital market. Further, we show that the relational strength between cash and product market performance evolves in a way that reflects a changing composition of manufacturing firms which progressively tilts toward young firms.

JEL Classification: D34, D38

Key words: Precautionary cash holdings; Product market performance; Time trend; Young and mature firms;

INTRODUCTION

Recently, Bates et al. (2009) find that the average cash-to-assets ratio for U.S. firms more than doubles from 1980 to 2006. While this increase appears to be pervasive, it is more pronounced for young firms. Following Bates et al. (2009), we regress the average cash-to-assets ratio on a constant and time. The coefficient on time for young firms is 0.0101, significant at the 1% level, implying that the average cash holdings of young firms have increased by 1.01% per year. In sharp contrast, the coefficient on time for mature firms is only 0.0007, implying an annual increase of 0.07%, which may not carry much economic significance. In this paper, we investigate the difference in cash holdings between young and mature firms, and we provide an explanation based on the impact of cash holdings on mature firms' product market performance.

Since mature firms are more likely to be financially unconstrained, one reasonable explanation lies in the ability of these firms to access capital markets and raise funds when they have liquidity needs. Han and Qiu (2007) suggest that sufficient financing capacity enables financially unconstrained firms to invest at the optimal level even if the future cash flow volatility increases, making precautionary cash holdings unnecessary. However, this explanation is questionable when firms face frictions in capital market transactions. Mature firms tend to have large and positive cash flow streams, and cash reserves saved from cash flows are always

less expensive than external funds raised from borrowing. Thus, why would managers prefer more expensive external financing to precautionary cash holdings if they expect future cash flows to be volatile? We conjecture that the primary reason for the unwillingness of mature firms to hold precautionary cash may be associated with some real negative consequences of such cash holdings.

When firms face external financing costs associated with asymmetric information in an imperfect capital market, precautionary cash holdings could have important strategic implications for firms by enabling managers to reduce underinvestment problems (Harford (1999)). In this case, we expect cash holdings to positively impact firm value. For example, using a sample of small and fast-growing firms with high market-to-book ratios, Mikkelson and Partch (2003) show that high cash holdings do not negatively impact operating performance. However, large cash reserves could be abused by managers when firms have low investment opportunities, leading to value destruction. For example, Blanchard, Lopez-de-Silanes, and Shleifer (1994) find that a sample of firms with low estimated investment opportunities tends to spend cash in ways that harm shareholders' wealth. Thus, empirical testing using different samples could generate different results, and there is not a "one-size-fits-all" inference regarding the impact of cash on firm value.

Approaching the strategic role of cash holdings from a different angle, Frésard (2010) investigates the relationship between a firm's cash reserves and its market share growth and provides evidence that precautionary cash holdings benefit a firm's product market performance. If cash reserves could deliver positive competitive outcomes in the product market, why are mature firms not particularly attracted to this strategy? One possibility is that when mature firms hold more cash, the free cash flow problem becomes more severe since such firms on average have lower investment opportunities than young firms. The negative consequences of managerial inefficiencies may extend beyond the valuation realms and penetrate into the product market. If this is the case, holding more cash could negatively impact the product market performance for mature firms. Consequently, managers will discipline themselves and become relatively conservative when it comes to holding precautionary cash.

Consistent with our conjecture, we find that Frésard's (2010) results are driven by young firms which value high cash holdings due to the financial constraints they face. Splitting our entire sample into four subsamples with different characteristics, we find that cash reserves negatively impact product market performance for the subsample of mature firms, while cash reserves are positively associated with product market performance for the subsample of young firms. Specifically, a 1% increase in precautionary cash in year t results in a 0.031% (0.054%) loss (gain) in the market share of mature (young) firms from years t to t+1. Moreover, we also find a significantly negative (positive) association between cash holdings and firm value for mature (young) firms. Taken together, we show that cash could have different effects on product market performance when different samples are used in empirical analyses.

From 1970 to 2006, the overall trend in the cash holdings of a typical U.S. manufacturing firm is largely driven by the dramatic increase in the cash holdings of young firms. Bates et al. (2009) suggest that a substantial portion of the increase in the cash holdings is due to the changing nature of newly listed firms over time. Brown and Kapadia (2007) provide evidence that new listings by riskier companies attribute to the increase in idiosyncratic risk in the U.S. stock market. Fama and French (2004) show that the newly listed firms with weak fundamentals have changed the composition of firms. If Frésard's (2010) results are driven by newly listed young firms, we should find evidence to support an increasingly stronger association between cash reserves and product market performance since these firms account for a progressively larger proportion of the publicly traded firms. This is exactly what we find. In the sub-period from 1970-1985, a 1% increase in cash holdings in year *t* brings about a 0.032% increase in market share from years *t* to *t*+1, while in the sub-period from 1995 to 2006, the same change in cash holdings in year *t* results in a 0.09% increase in market share from years *t* to *t*+1. Meanwhile, the impact of cash on firm value also exhibits a similar pattern: The value premium generated by a 1% increase in cash holdings increases over time.

This paper makes two important contributions to the literature. First, we find that cash reserves negatively impact mature firms' product market performance, evidence that better explains why mature firms are less likely to hold precautionary cash. Second, we show that the new listings effect is pervasive and could drive the empirical results of studies on corporate cash policies. This cautions us about the interpretations derived on these results.

The remainder of this paper proceeds as follows. In section 2, we describe the data and sample selection process, and present summary statistics. Section 3 analyzes the impact of cash on product market performance. Section 4 analyzes the impact of the new listings effect. We conclude in Section 5.

SAMPLE SELECTION AND SUMMARY STATISTICS

Our original sample includes all U.S. public manufacturing firms (SIC Code 2000-2999) from Compustat annual database over the period 1970-2006. Following Frésard (2010), we use the four-digit SIC codes to define industries and exclude four-digit SIC codes ending with zero and nine. This filter is used by Clarke (1989) and Frésard (2010) to minimize the concerns that some of the three- and four-digit codes may fail to combine firms to homogenous economic markets. We delete all firm-year observations with missing information on sales, cash holding, or total assets. We require leverage to be bound between 0 and 1, inclusive, and eliminate firm-years for which asset growth is greater than 200%. Details regarding variable construction are in Appendix A. Our final sample includes 39,491 firm-year observations for 3,804 unique manufacturing firms and 128 four-digit industries.

Using the number of years a firm has existed in Compustat database with a non-missing stock price, we divide our final sample of firms into four subsamples: The mature subsample

(including firms that have existed for at least 30 years), the 20-year subsample (including firms that have existed for more than 20 but less than 30 years), the 10-year subsample (including firms that have existed for more than 10 but less than 20 years), and the young subsample (including firms that have existed for less than 10 years).

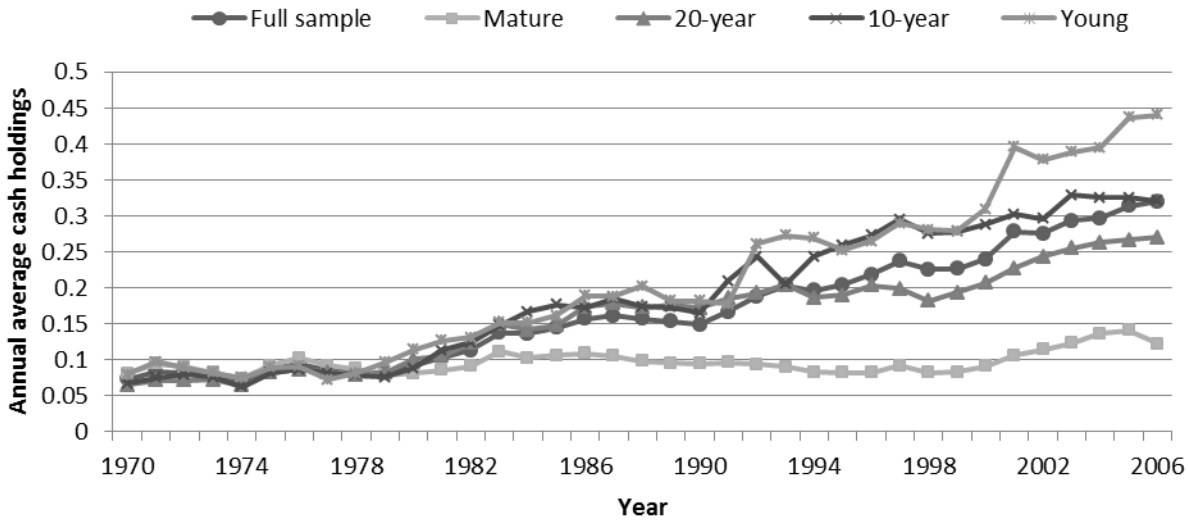
Table 1
Average and median cash holdings from 1970 to 2006

Year	N	Full sample		Mature firms		Young firms	
		Average Cash ratio	Median Cash ratio	Average Cash ratio	Median Cash ratio	Average Cash ratio	Median Cash ratio
1970	582	0.073	0.049	0.081	0.055	0.073	0.048
1971	609	0.083	0.057	0.094	0.065	0.090	0.054
1972	628	0.082	0.055	0.090	0.063	0.088	0.053
1973	859	0.078	0.047	0.082	0.052	0.081	0.048
1974	996	0.068	0.042	0.074	0.045	0.069	0.038
1975	1,011	0.086	0.056	0.092	0.064	0.088	0.052
1976	999	0.093	0.062	0.102	0.075	0.091	0.048
1977	986	0.085	0.052	0.092	0.056	0.079	0.044
1978	1,001	0.083	0.050	0.087	0.058	0.083	0.039
1979	1,039	0.081	0.045	0.078	0.051	0.093	0.043
1980	1,073	0.092	0.051	0.081	0.050	0.113	0.047
1981	1,085	0.103	0.057	0.086	0.056	0.130	0.070
1982	1,152	0.113	0.064	0.091	0.060	0.137	0.067
1983	1,180	0.137	0.081	0.112	0.077	0.159	0.074
1984	1,266	0.136	0.068	0.102	0.062	0.158	0.082
1985	1,327	0.144	0.073	0.106	0.059	0.165	0.097
1986	1,334	0.157	0.085	0.110	0.066	0.190	0.116
1987	1,393	0.161	0.080	0.105	0.061	0.191	0.088
1988	1,437	0.157	0.079	0.098	0.047	0.198	0.094
1989	1,382	0.153	0.073	0.095	0.048	0.177	0.073
1990	1,376	0.149	0.068	0.093	0.046	0.169	0.070
1991	1,396	0.167	0.087	0.097	0.053	0.178	0.091
1992	1,408	0.188	0.096	0.093	0.052	0.259	0.173
1993	1,527	0.203	0.112	0.090	0.049	0.268	0.179
1994	1,657	0.196	0.107	0.083	0.045	0.263	0.202
1995	1,734	0.204	0.109	0.082	0.044	0.246	0.165
1996	1,819	0.218	0.111	0.082	0.049	0.267	0.215
1997	1,915	0.237	0.130	0.093	0.047	0.296	0.216
1998	1,896	0.225	0.113	0.082	0.039	0.288	0.198
1999	1,762	0.226	0.114	0.083	0.036	0.285	0.186
2000	1,652	0.240	0.123	0.09	0.034	0.311	0.232
2001	1,691	0.278	0.180	0.106	0.055	0.384	0.349
2002	1,619	0.275	0.185	0.114	0.063	0.368	0.322
2003	1,525	0.293	0.215	0.123	0.076	0.382	0.340
2004	1,469	0.297	0.218	0.136	0.096	0.384	0.342
2005	1,460	0.314	0.233	0.142	0.088	0.423	0.386
2006	1,250	0.320	0.232	0.121	0.076	0.427	0.416

Table 1 reports the average annual cash holdings and median cash holdings for the full sample, the mature subsample, and the young subsample. The number of firms in column 2 applies to the full sample. By restricting our sample to the manufacturing firms (SIC Code 2000-3999), we find an even sharper increase in cash holdings of U.S. firms, compared to the increase in Bates et al. (2009)'s sample, which only excludes financial firms (SIC Code 6000-6999) and utilities (SIC Code 4900-4999). The average cash ratio of Bates et al. (2009)'s sample increases from 10.5% in 1980 to 23.2% in 2006, while this ratio in our sample increases from 9.2% to 32%. Since our sample includes only "old-economy" manufacturing firms, the time trend in the cash holdings from Table 1 is consistent with Bates et al. (2009)'s finding that the dramatic increase in cash holdings is not caused by an increase in the proportion of high-tech firms. Columns 5 to 8 present cash holdings for the mature and the young subsamples. From 1970 to 2006, the average cash ratio has more than quintupled for the young subsample, while this ratio has not even doubled for the mature subsample. The median cash ratio demonstrates similar trends for these two subsamples.

This table presents the annual average cash holdings and median cash holdings for the full sample, the mature subsample, and the young subsample. The mature subsample includes firms that have been on Compustat for at least 30 years, and the young subsample includes those that have been on Compustat for less than 10 years. The full sample includes 39,491 firm-year observations for 3,804 unique manufacturing firms and 128 four-digit industries. Details regarding variable construction are in Appendix A.

Figure 1. Average cash ratios of the full sample and the four subsamples from 1970 to 2006



The full sample includes 39,491 firm-year observations for 3,804 unique manufacturing firms and 128 four-digit industries. Firms in the full sample are assigned to four subsamples based on the number of years a firm has existed in the Compustat database with a non-missing

stock price. The mature subsample includes firms that have existed for at least 30 years. The 20-year subsample includes firms that have existed for more than 20 but less than 30 years. The 10-year subsample includes firms that have existed for more than 10 but less than 20 years. The young subsample includes firms that have existed for less than 10 years.

Figure 1 illustrates the varying average cash ratios for all four subsamples. Over time, the average cash holdings have remained stable for the mature subsample, slightly picking up after 2000. Following Bates et al. (2009), we regress the average cash ratio on a constant and time, and report the estimation results in Table 2. The coefficient on time for the full sample implies an annual increase of 0.69% in cash holdings and the increase is significant at the 1% level. Of the four subsamples, the young subsample has the highest coefficient, which corresponds to an annual increase of 1.01%, significant at the 1% level. Although the coefficient reported in column 2 for the mature subsample is significant at the 1% level, an annual increase of 0.07% in the average cash ratio lacks economic significance. Taken together, our evidence suggests that the difference in cash holdings between the mature and the young subsamples is too huge to be ignored, and it is not driven by high-tech firms, which have a tendency to hold large amount of cash.

Table 2
Regression results of the time trend in cash holdings

Variable	Full sample	Mature subsample	20-year	10-year	Young subsample
Intercept	0.0351***	0.0827***	0.0495***	0.0281***	0.0165
	(5.97)	(18.00)	(9.75)	(4.75)	1.55
Time	0.0069***	0.0007***	0.0057***	0.0083***	0.0101***
	(25.78)	(3.64)	(25.06)	(28.74)	(20.68)***
Obs.	37	37	37	37	37
Adjusted R^2	0.948	0.253	0.945	0.958	0.922

This table presents the estimation results from regressing annual average cash ratios on a constant and time. The full sample includes 39,491 firm-year observations for 3,804 unique manufacturing firms and 128 four-digit industries. Firms in the full sample are assigned to four subsamples based on the number of years a firm has existed in the Compustat database with a non-missing stock price. The mature subsample includes firms that have existed for at least 30 years. The 20-year subsample includes firms that have existed for more than 20 but less than 30 years. The 10-year subsample includes firms that have existed for more than 10 but less than 20 years. The young subsample includes firms that have existed for less than 10 years. We adjust standards errors for heteroscedasticity and serial correlation while *t*-statistics are in parentheses under each coefficient estimate. We denote significance at the 10%, 5%, and 1% levels by *, **, and ***, respectively.

THE IMPACT OF CASH ON THE PRODUCT MARKET PERFORMANCE OF MATURE FIRMS

In this section, we investigate why mature firms are far less likely to hold precautionary cash relative to young firms. Our conjecture is that large cash holdings in mature firms with mediocre investment opportunities induce managers to engage in negative NPV projects and other organizational inefficiencies and such activities negatively impact both firm value and product market performance. If value destruction simply reflects agency costs and will not motivate managers to discipline themselves, then the loss of market share and threat to survival in the product market are powerful enough to incentivize managers to cut down on precautionary cash holdings.

To test our hypothesis, we build on Frésard (2010)'s methodology and proceed in three steps. First, we regress cash holdings on their first and second lagged values and asset tangibility. Consistent with Berger, Ofek, and Swary (1996) and Frésard (2010), we define asset tangibility as a function of receivables, inventory, and fixed capital. Second, we obtain predicted cash holdings from the first step as instrumented cash holdings. Third, we construct three dummy variables (S30, S20, and S10) and obtain interaction terms between each dummy variable and instrumented cash holdings.

Table 3 reports the results of the two-stage IV estimation of the impact of cash holdings on market share growth. We replicate Frésard (2010)'s results in columns 1, 3, and 5. Column 5 presents the coefficient estimates of the first-stage regression. The sign and magnitude of each coefficient estimate and the R^2 of this regression are close to those in Frésard (2010). In columns 1 and 3, we report the results of the second-stage estimation. R^2s of the second-stage regressions are low (less than 5%) since the dependent variable is industry-adjusted, which is likely to include a large idiosyncratic component (Harford et al. (2008)). Our evidence confirms Frésard (2010)'s finding that cash holdings generally have a positive impact on market share growth.

This table presents results of panel regressions examining the effect of cash holdings on market share growth. The dependent variable is ΔMarketshares, defined as the annual industry-adjusted sales growth. Columns 1 through 4 report the second-stage instrumental variable (IV) estimates, where cash holdings are instrumented by their lagged values and asset tangibility. We also present diagnostic statistics for instrument overidentification restrictions (*J*-statistics) and exogeneity conditions (Durbin-Hausman-Wu). Column 5 reports the first-step estimation results of cash holdings on lagged values and tangibility. The full sample includes 39,491 firm-year observations for 3,804 unique manufacturing firms and 128 four-digit industries. Variable definitions are in Appendix A. We adjust standards errors for heteroscedasticity and serial correlation while *t*-statistics are in parentheses under each coefficient estimate. We denote significance at the 10%, 5%, and 1% levels by *, **, and ***, respectively.

Table 3
The impact of cash on market share growth

	Second-stage estimation				First-stage estimation	
	(1)	(2)	(3)	(4)		(5)
$Cash_{t-2}$	0.034*** (4.94)	0.049*** (6.13)			Tangibility	-0.428*** (-5.62)
$Cash_{t-1}$			0.061*** (9.04)	0.054*** (7.76)	$Cash_{t-1}$	0.506*** (48.54)
$Cash_{t-2}$*S30		-0.035*** (-3.13)			$Cash_{t-2}$	0.082* (1.69)
$Cash_{t-2}$*S20		-0.029*** (-3.03)				
$Cash_{t-2}$*S10		-0.006 (-0.72)				
$Cash_{t-1}$*S30				-0.031*** (-2.90)		
$Cash_{t-1}$*S20				-0.015* (-1.71)		
$Cash_{t-1}$*S10				0.007 (0.88)		
S30		0.009*** (3.96)		0.008*** (3.82)		
S20		0.007*** (3.16)		0.004** (2.05)		
S10		0.004* (1.71)		0.001 (0.71)		
$Size_{t-1}$	-0.006*** (10.13)	-0.001*** (-4.58)	-0.007*** (-11.89)	-0.001*** (-6.13)		
$Leverage_{t-1}$	0.016*** (3.83)	0.016*** (6.96)	0.017*** (4.25)	0.016*** (7.22)		
$Leverage_{t-2}$	-0.017*** (-4.19)	-0.013*** (-5.12)	-0.014*** (-3.82)	-0.010*** (-4.47)		
ΔMS_{t-1}	-0.008*** (-5.67)	-0.001 (-0.10)	-0.007*** (-5.16)	-0.001** (-2.10)		
ΔMS_{t-2}	-0.007*** (-5.12)	-0.002*** (-4.08)	-0.005*** (-4.12)	-0.002*** (-3.35)		
Firm fixed effects	Yes	Yes	Yes	Yes		Yes
Year fixed effects	Yes	Yes	Yes	Yes		Yes
Obs.	31,750	31,750	35,152	35,152		39,491
R^2	0.029	0.012	0.039	0.021		0.776
J-statistic	0.16	0.19	0.22	0.17		
Durbin-Hausman-Wu	0.00	0.00	0.03	0.00		

Next, we show that cash holdings impact product market performance differently in different subsamples by adding interaction terms *Cash*S30*, *Cash*S20*, and *Cash*S10* in our analyses. Columns 2 and 4 report the estimation results. The coefficients on *Cash*S30* are significantly negative, suggesting that cash holdings negatively impact the product market performance of mature firms. In contrast, the positive coefficients on *Cash* indicate that there is a positive association between cash holdings and product market performance for young firms. Specifically, a 1% increase in the cash holdings of mature (young) firms would result in a loss (gain) of 0.03% (0.05%) in market share between years *t* to *t*+1. Across all specifications, the Durbin-Hausman-Wu test rejects the null hypothesis that exogeneity conditions are satisfied, suggesting that cash holdings need to be instrumented. Meanwhile, the null hypothesis that excluded instruments are exogenous is not rejected by the test of overidentification restrictions (Hansen-J Statistics).

In Table 4, we demonstrate that the relation between cash and firm value also varies across different subsamples. Following Frésard (2010), we use industry-adjusted market-to-book ratio to proxy for firm value and include firm size, cash flow, investment, leverage, and dividend dummy as control variables. We replicate the finding in Frésard (2010) in columns 1 and 3 that that firms with large cash reserves generally receive higher market valuation. However, in columns 2 and 4, we show that the coefficient on *Cash*S30* is significantly negative while the coefficient on *Cash* is significantly positive, evidence that suggests higher cash holdings destroy (create) value for mature (young) firms.

This table presents results of panel regressions examining the effect of cash holdings on firm value. The dependent variable is industry-adjusted market-to-book ratio. Columns 1 through 4 report the second-stage instrumental variable (IV) estimates, where cash holdings are instrumented by their lagged values and asset tangibility. We also present diagnostic statistics for instrument overidentification restrictions (*J*-statistics). The first-step estimation results of cash holdings on lagged values and tangibility are reported in column 5 of Table 3. The full sample includes 39,491 firm-year observations for 3,804 unique manufacturing firms and 128 four-digit industries. Variable definitions are in Appendix A. We adjust standards errors for heteroscedasticity and serial correlation while *t*-statistics are in parentheses under each coefficient estimate. We denote significance at the 10%, 5%, and 1% levels by *, **, and ***, respectively.

Table 4
The impact of cash on firm value

Variables	(1)	(2)	(3)	(4)
$Cash_{t-1}$	0.071***	0.253***	0.030*	0.101***
	(2.70)	(8.87)	(1.66)	(5.47)
$Cash_{t-1}$*S30		-0.137***		-0.044***
		(-3.56)		(-2.75)
$Cash_{t-1}$*S20		-0.125***		-0.004
		(-3.64)		(0.14)
$Cash_{t-1}$*S10		-0.016		0.048**
		(-0.50)		(2.33)
S30		0.491***		0.140**
		(4.74)		(2.33)
S20		0.327***		0.042
		(3.41)		(0.75)
S10		0.214**		-0.028
		(2.42)		(-0.54)
$Size_{t-1}$	-0.395***	-0.264***	-0.261***	-0.066**
	(-12.18)	(-28.47)	(-11.79)	(-12.00)
$Investment_{t-1}$	0.113***	0.122***	-0.091	-0.145***
	(2.75)	(4.56)	(-2.57)	(-6.06)
$Leverage_{t-1}$	-0.185*	-0.275***	0.036	0.002
	(-1.65)	(-4.57)	(0.45)	(0.03)
Cash $flow_{t-1}$	-0.292***	-0.475***	-0.191***	-0.339***
	(-4.81)	(-21.18)	(-3.16)	(-16.80)
$Dividend_{t-1}$	0.118***	0.066***	0.072***	0.002
	(3.15)	(2.56)	(2.89)	(0.10)
Sales $growth_{t-1}$			0.026	0.027**
			(0.91)	(1.99)
MB_{t-1}			0.407***	0.559***
			(25.00)	(27.84)
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Obs.	34,358	33,580	34,358	33,580
R^2	0.117	0.471	0.189	0.605
J-statistic	0.41	0.39	0.16	0.15

THE IMPACT OF NEW LISTINGS EFFECT

In the previous section, we show that cash holdings have two contrasting effects on product market performance and firm value. Specifically, cash holdings are positively (negatively) associated with product market performance and firm value in young (mature) firms. We also show that the overall effect supports a positive relation between cash holdings

and product market performance/firm value. If the overall effect is driven by young firms, we should be able to observe an increase in the relational strength between cash holdings and product market performance/firm value as more young and riskier firms become listed and account for a larger proportion of publicly traded firms.

We test this hypothesis in Table 5 and 6 by splitting the sample period into three sub-periods, i.e., 1970-1985, 1986-1995, and 1996-2006. In Table 5, we show that the positive effects of cash holdings on market share growth increase over time. Specifically, over the sub-period of 1970 to 1985, a 1% increase in cash holdings results in a 0.03% increase in market share growth from years *t* to *t*+1, while from 1996 to 2006, a 1% increase in cash holdings leads to a 0.09% increase in market share growth from years *t* to *t*+1. Table 6 presents the results of cash holdings on firm value and we find that cash holdings significantly increase firm value only in the third sub-period.

Table 5
The impact of new listings effect on the relations between cash and market share growth

Variable	1970-1985		1986-1995		1996-2006	
	(1)	(2)	(3)	(4)	(5)	(6)
$Cash_{t-2}$	0.023*		0.022*		0.053***	
	(1.77)		(1.85)		(4.16)	
$Cash_{t-1}$		0.032***		0.061***		0.090***
		(2.99)		(4.11)		(7.67)
$Size_{t-1}$	0.009***	-0.008***	-0.012***	-0.014***	-0.006***	-0.009***
	(-7.24)	(-7.16)	(-7.06)	(-8.08)	(-3.58)	(-4.85)
$Leverage_{t-1}$	-0.002	0.001	0.008	0.010	0.024***	0.024***
	(-0.36)	(-0.12)	(1.39)	(1.71)	(3.05)	(3.05)
$Leverage_{t-2}$	-0.007	-0.007	-0.018***	-0.012**	-0.024***	-0.020***
	(-1.55)	(-1.62)	(-3.54)	(-2.54)	(-2.99)	(-2.66)
ΔMS_{t-1}	-0.002	-0.001	-0.011	-0.011***	-0.016***	-0.014***
	(-1.09)	(-0.46)	(-3.77)	(-3.85)	(-7.37)	(-7.18)
ΔMS_{t-2}	-0.009***	-0.007***	-0.009***	-0.006***	-0.012***	-0.009***
	(-6.22)	(-5.12)	(-3.88)	(-2.59)	(-5.88)	(-5.19)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	9,006	10,414	9,842	10,728	12,902	14,010
R^2	0.042	0.047	0.046	0.049	0.051	0.053
J-statistic	0.42	0.27	0.16	0.14	0.14	0.12

This table presents results of panel regressions examining the impact of new listings effect on the relational strength between cash and market share growth. The dependent variable is ΔMarketshares, defined as the annual industry-adjusted sales growth. Columns 1 and 2 report the second-stage instrumental variable (IV) estimates for the sub-period over 1970 to 1985, where cash holdings are instrumented by their lagged values and asset tangibility. Columns 3 and 4 report estimation for the sub-

period over 1986 to 1995. Columns 5 and 6 report estimation for the sub-period over 1996 to 2006. The first-step estimation results of cash holdings on lagged values and tangibility are reported in column 5 of Table 3. We also present diagnostic statistics for instrument overidentification restrictions (*J*-statistics). The full sample includes 39,491 firm-year observations for 3,804 unique manufacturing firms and 128 four-digit industries. Variable definitions are in Appendix A. We adjust standards errors for heteroscedasticity and serial correlation while *t*-statistics are in parentheses under each coefficient estimate. We denote significance at the 10%, 5%, and 1% levels by *, **, and ***, respectively.

Table 6
The impact of new listings effect on the correlations between cash holdings and firm value

Variable	1970-1985		1986-1995		1996-2006	
	(1)	(2)	(3)	(4)	(5)	(6)
$Cash_{t-1}$	0.045	0.008	0.052	0.033	0.074***	0.072***
	(1.30)	(0.31)	(1.60)	(1.06)	(2.09)	(2.36)
$Size_{t-1}$	-0.207***	-0.147***	-0.501***	-0.356***	-0.832***	-0.659***
	(-4.44)	(-4.84)	(-7.77)	(-6.94)	(-15.09)	(-13.85)
$Investment_{t-1}$	0.118**	0.021	-0.032	-0.147**	0.169***	0.001
	(2.08)	(0.42)	(-0.46)	(-2.32)	(2.71)	(0.01)
$Leverage_{t-1}$	-0.069	0.078	-0.109	0.051	-0.267	-0.157
	(-0.47)	(0.84)	(-0.63)	(0.36)	(-1.34)	(-0.92)
Cash $flow_{t-1}$	0.195	0.012	-0.112	-0.106	-0.101	-0.081
	(0.69)	(0.05)	(-0.74)	(-0.74)	(-1.48)	(-1.24)
$Dividend_{t-1}$	0.133***	0.082***	0.093	0.048	0.092	0.054
	(3.38)	(3.36)	(1.23)	(0.77)	(1.35)	(0.96)
Sales $growth_{t-1}$		-0.039		0.107**		0.015
		(-1.00)		(2.01)		(0.39)
MB_{t-1}		0.399***		0.312***		0.256***
		(9.70)		(9.08)		(12.40)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	10,105	10,058	10,522	10,284	13,686	13,238
R^2	0.052	0.505	0.057	0.312	0.068	0.198
J-statistic	0.47	0.27	0.27	0.20	0.57	0.51

This table presents results of panel regressions examining the impact of new listings effect on the relational strength between cash holdings and firm value. The dependent variable is industry-adjusted market-to-book ratio. Columns 1 and 2 report the second-stage instrumental variable (IV) estimates for the sub-period over 1970 to 1985, where cash holdings are instrumented by their lagged values and asset tangibility. Columns 3 and 4 report estimation for the sub-period over 1986 to 1995. Columns 5 and 6 report estimation for the sub-period over 1996 to 2006. We also present diagnostic statistics for instrument overidentification restrictions (*J*-statistics). The first-step estimation results of cash holdings on lagged values and tangibility are reported in column 5 of Table 3. The full sample includes 39,491 firm-year observations for

3,804 unique manufacturing firms and 128 four-digit industries. Variable definitions are in Appendix A. We adjust standards errors for heteroscedasticity and serial correlation while *t*-statistics are in parentheses under each coefficient estimate. We denote significance at the 10%, 5%, and 1% levels by *, **, and ***, respectively.

CONCLUSION

Growth in corporate cash holdings in recent years has puzzled economists, politicians and policy makers alike. However, there is a huge difference in the cash holdings between the young and mature firms. The average cash holdings of young firms have increased from 7.3% in 1970 to 42.7% by the end of 2006. In contrast, the average cash holdings of mature firms have stayed relatively stable (8.1%-12.1%) throughout our entire sample period. We show that the unwillingness of mature firms to hold precautionary cash may be explained by the negative association between cash holdings and product market performance. Loss of market share resulting from holding higher levels of cash would incentivize managers to cut down on cash holdings and maintain a relatively small cash balance. Meanwhile, the overall effects of cash holdings on product market performance/firm value get stronger as the composition of manufacturing firms progressively tilts toward newly listed firms.

REFERENCES

Bates, Thomas W., Kahle Kathlee M., and Rene M. Stulz, 2009, Why do U.S. firms hold so much more cash than they used to? *Journal of Finance* 64, 1985-2021.

Berger, Philip, Eli Ofek, and Itzhak Swary, 1996, Investor valuation and abandonment option, *Journal of Financial Economics* 42, 257-287.

Blanchard, Olivier J., Andrei Shleifer and Florencio Lopez de Silanes, What do firms do with cash windfalls? *Journal of Financial Economics* 36, 337-360.

Clarke, Richard N., 1989, SICs as delineators of economic markets, *Journal of Business* 62, 17-31.

Fama, Eugene F. and Kenneth R. French, 2004, New lists: fundamentals and survival rates. Journal of Financial Economics 73, 229-269

Brown, Gregory W. and Nishad Kapadia, 2007, Firm-specific risk and equity market development. *Journal of Financial Economics* 84, 358-388.

Fresard, Laurent, 2010, Financial strength and product market behavior: The real effects of corporate cash holdings, *Journal of Finance* 65, 1097-1122.

Han, Seungjin, and Jiaping Qiu, 2007, Corporate precautionary cash holdings, *Journal of Corporate Finance* 13, 43-57.

Harford, Jarrad, 1999, Corporate cash reserves and acquisitions, *Journal of Finance* 54, 1969-1997.

Harford, Jarrad, Sattar Mansi, and William Maxwell, 2008, Corporate governance and a firm's cash holdings, *Journal of Financial Economics* 87, 535-555.

Jensen, Michael C., 1986, Agency costs of free cash flow, corporate finance and takeovers, *American Economic Review* 76, 323-329.

Mikkelson, Wayne H., Megan M. Partch 2003, Do persistent large cash reserves hinder performance? *Journal of Financial and Quantitative Analysis* 38, 275-294.

Appendix A: Variable definitions	
Variables	
Cash holding	Cash and equivalents (CHE) / total assets (AT)
ΔMarketShares	($Sale_t$ (SALE) – $sale_{t-1}$) / $sale_{t-1}$ – industry-year average
Investment	(PPE_t (PPENB) – PPE_{t-1}) / PPE_{t-1}
Total debt	Short-term debt (DLC) + long-term debt (DLTT)
Market equity	Stock's closing price at the fiscal year-end (PRCC_F) * Number of shares (CSHO)
Market-to-book ratio	[Total assets (AT) – common equity (CEQ) + Stock price (PRCC_F) * common shares outstanding (CSHO)] / total assets (AT)
Firm size	Log[total assets (AT)], where total assets are converted to 2004 dollars using CPI
Cash flow ratio	[Operating income (OIBDP) – interest expense (XINT) – taxes (TXT) – dividends (DVC)] / total assets (AT)
Tangibility	0.715*Receivables (RECT) + 0.547*inventories (INVT) + 0.535*fixed capital (PPEGT), see Berge et al. (1996)
Book leverage	[Short-term debt (DLC) + long-term debt (DLTT)] / total assets (AT)
Dividend dummy	Equal to 1 if a firm paid a positive dividend and 0 otherwise
Industry sigma	The average of prior 10 year standard deviations of cash flow ratio (CF) for firms in the same industry defined by 2 digit SIC codes, at least three observations required
S30	Dummy variable set to equal 1 if a firm has existed for more than 30 years in Compustat with a non-missing stock price
S20	Dummy variable set to equal 1 if a firm has existed for more than 20 but less than 30 years in Compustat with a non-missing stock price
S10	Dummy variable set to equal 1 if a firm has existed for more than 10 but less than20 years in Compustat with a non-missing stock price