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Dignity, (Almost) Always Dignity: The Tone of CEO Departure Press Releases

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Abstract

This paper examines press releases that announce the departure of the firm's CEO. Using the Loughran and McDonald (2011) dictionary, we find that the tone of the press release is almost always positive, with the number of positive words exceeding the number of negative words, even when the CEO is forced to leave the firm. For both types of words (positive and negative), fifteen of the twenty most frequently-used words in the press releases for voluntary departures are common to those for forced departures. Press releases for forced departures are *less* positive, however. The rare exceptions – press releases with more negative words than positive words – are more likely when the departure announcement coincides with an announcement involving the departing CEO's involvement in a federal or internal investigation.

I. Introduction

Arguably the most important decisions that a corporate board makes involve succession planning and whether to retain or fire the CEO. When CEOs are forced out, boards rarely make public the details of what ultimately led to the decision. Trying to discern which factors carry weight in the board's decision has been a topic of great interest to academics for twenty years. For example, Parrino (1997) concludes that important factors are: "the availability of a capable successor and the ability of monitors to accurately assess CEO performance" (p. 166). Recent research includes that of Hazarika, Karpoff, and Nahata (2012), who find a relation between forced departures and earnings management and conclude "boards tend to act proactively to discipline managers who manage earnings aggressively, before manipulations lead to costly external consequences" (p. 44). Jenter and Kanaan (2015) provide evidence that some CEOs are likely to be fired due to factors beyond their control, such as poor industry performance.

Recent evidence from board meeting minutes suggests CEOs may be forced out of the firm more often than previously documented. Schwartz-Ziv and Weisbach (2013) examine the board meeting minutes of 11 Israeli firms and find several instances in which "the CEO was clearly coerced to leave by the board, yet there would be no way to know the departure was not voluntary using only publicly available data" (p. 351). Board meeting minutes of U.S. firms are for the most part unavailable to researchers. As a result, Schwartz-Ziv and Weisbach suggest that academic research likely underestimates the percentage of board-initiated CEO departures.

Firms issue a press release when the CEO leaves, regardless of the reason for the departure. In this paper, we examine the words that firms use in the press release. Given the apparent reluctance of boards to disclose who initiated the departure decision, we hypothesize that regardless of whether the CEO leaves voluntarily or is forced out, the press release has a positive tone to allow the CEO to leave with dignity. Our sample consists of the company-issued press releases of 524 CEO departures at U.S.-listed firms from 2009 to 2011. We analyze the

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tone of the press releases using the positive and negative word lists provided in the Loughran and McDonald (2011) dictionary.

About 65% of the press releases in our sample include a disclaimer, following the text of the press release, acknowledging that the text contains forward-looking statements. Such disclaimers are Safe Harbor Statements and have become commonplace in press releases in an attempt to reduce company liability should the forecasts stated in the text fail to materialize. McLaren-Hankin (2008) analyzes the lexico-grammatical forms used in all 100 of the press releases made by 15 UK-based biotech firms from 2002 to 2006. She finds that firms use hedging language not only in the text's claims but also in the disclaimer. These findings suggest that a thorough analysis of the press release tone should examine not only the text of the press releases but also any disclaimer.

II. Data Description

The sample consists of 524 CEO departure company-issued press releases of U.S.-listed firms that were published by Business Wire or PR Newswire from September 2009 through December 2011. A list of CEO departures is obtained by using Factiva to manually search all days for all U.S.-listed firms using CEO departure phrases. We search newswires and other company press releases to check for the earliest announcement. Consistent with the academic literature, we exclude from our sample instances when a co-CEO leaves or is appointed; a CEO leaves but duties are split among other executive officers; a firm has no CEO and one is appointed; or the CEO position is eliminated or created as the result of merger, spinoff, restructuring, or bankruptcy.

We follow the literature and read each press release and manually classify CEO departures as forced if the press release from the company states that the CEO was fired or if the announcement or another news articles make it clear that the CEO did not leave voluntarily (e.g., a federal or internal investigation for fraud or misconduct is underway, ongoing, or resolved, or the CEO has been forced out by activist shareholders). The CEO departure is also classified as a forced departure if the press release indicates the CEO is resigning all positions effective immediately and will not remain with the firm in any capacity, unless the CEO does so for personal reasons or to pursue other opportunities.

After manually classifying the departures, we convert each press release to a plain text file and use SAS code to find all positive, negative, and negation words in the Loughran and McDonald (2011) dictionary. The dictionary has 353 positive words and 2,337 negative words. Following Loughran and McDonald (2011), we account for simple negation by classifying positive words as "negated positive" words if any of the six words -- *no, not, none, neither, never, nobody* -- are the first, second, or third word prior to the positive word. Negated positive words are tallied as negative words rather than positive words.

Summary statistics for the sample are provided in Table 1. Panel A of Table 1 reports word count statistics for the 524 press releases in their entirety (i.e., including the disclaimer if it exists), then for the text excluding any disclaimer, and finally for the disclaimer section for the 339 press releases that have a disclaimer statement. On average, for the press releases in their

entirety, the number of positive words exceeds the number of negative words (the difference has a mean of 8.78 and median of 9.00).

Table 1:

	Press Release (Including Disclaimer)			Press Release (Excluding Disclaimer)			Disclaimer		
	524			524			339		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
Number of Positive Words	16.44	15.00	9.75	14.91	13.00	8.80	2.38	1.00	3.34
Number of Negative Words	7.66	4.00	12.79	2.85	2.00	4.67	7.44	4.00	11.74
Positive Words minus Negative Words	8.78	9.00	12.46	12.06	11.00	8.90	-5.06	-2.00	10.05
Number of Positive Words > 0		99.2%			99.2%			67.0%	
Number of Negative Words > 0		90.3%			78.1%			92.6%	
Number of Positive Words		14.7%			4.0%			74.6%	
Forced Departure (% of Firms)		16.2%							

	Mean	Median	Std. Dev.
Market Cap. (in Billion $)	5.01	0.48	17.93
Book-to-Market	0.800	0.638	0.855
CEO Power	0.498	0.543	0.569

The difference in positive and negative words is even higher in the text portion of the press release (mean of 12.06 and median of 11.00). Analyzing the disclaimer statement tells a different story, however, with negative words exceeding positive words by 5.06 words on average. This is probably not surprising given the cautionary nature of disclaimers.

In addition to the word counts, Table 1 reports the percentage of press releases with at least one positive word, percentage with at least one negative word, and percentage with a negative tone, which we define as having more negative words than positive words. When the entire press release (including disclaimer) is analyzed, 99.2% have at least one positive word, 90.3% have at least one negative word, and only 14.7% have a negative tone. The percentage of

press releases with at least one negative word and percentage with a negative tone drop to 78.1% and just 4.0%, respectively, when the disclaimer is excluded from the press release. For the disclaimer statements, the percentage with at least one positive word drops to 67.0% and the percentage with negative tone jumps to 74.6%.

Additional information about the sample is provided in Panel B of Table 1. For 16.2% of the firms, we manually classify the departure as a forced departure. This percentage is lower than the 19.8% documented by Hazarika et al. (2012) for the period 1992 to 2004.

Panel B of Table 1 also reports summary statistics for market capitalization, book-to-market, and CEO power. CEO power is the natural log of the CEO's total compensation divided by the next highest-paid executive's total compensation. These variables will be used as control variables in a regression analysis of press release tone as a function of whether the departure is forced or voluntary.

III. Comparison of Press Releases for Voluntary and Forced Departures

We now compare word choices and tone for voluntary and forced departures. Table 2 reports the results of the comparison for the press release text (excluding the disclaimer) in Panel A and for the disclaimer in Panel B. Panel A reports that press releases for voluntary departures average more positive words and fewer negative words than those for forced departures. That said, forced departures do have more positive words than negative words on average, with a mean of 8.95. Tests of differences of the means for number of positive words, negative words, and number of positive words less negative words are all significant at conventional levels (*p*-values of 0.037, 0.006, and 0.004, respectively). In un-tabulated results, we find that tests of differences of the medians are also significant at conventional levels.

It is worth noting that the standard deviations for all of the word count measures are relatively large, indicating quite a bit of dispersion across voluntary announcements as well as forced announcements. For example, for the measure of the difference in positive words versus negative words, for voluntary departures, the mean is 12.66 and the standard deviation is 8.81 in comparison to a mean of 8.95 and a standard deviation of 8.76 for forced departures. Although the mean for voluntary departure announcements is significantly lower (*p*-value of 0.004), the standard deviations suggest substantial overlap of the distributions of voluntary and forced departures. Panel B of Table 2 shows that the word count measures are not significantly different for voluntary and forced departures when we analyze just the disclaimer statements.

Table 2 also reports the results of chi-square tests of the percentage of press releases with at least one positive word, at least one negative word, and negative words outnumbering positive words. Panel A reports that using the text of the press releases, forced departures are significantly more likely to have at least one negative word and significantly more likely to have more negative words than positive words compared with voluntary departures. That said, the percentage of press releases with more negative words than positive words for forced departures is far less than half (just 11.8%). Panel B reports that using the disclaimer, forced departures are significantly more likely to have more negative words than positive words compared with voluntary departures (86.9% versus 71.9%, with a *p*-value of 0.015).

Table 2:

	Voluntary Departures	Forced Departures	*p*-Value of Test of Difference		Memo: Investi-gation
	439	85			11
Mean	15.26	13.08	0.037	**	10.91
Standard Deviation	8.80	8.62			8.04
Mean	2.60	4.12	0.006	***	10.91
Standard Deviation	4.61	4.77			6.74
Mean	12.66	8.95	0.004	***	0.00
Standard Deviation	8.81	8.76			10.70
	99.1%	100.0%	0.377		100.0%
	76.3%	87.1%	0.028	**	100.0%
	2.5%	11.8%	<0.001	***	63.6%
	278	61			9
	2.39	2.31	0.865		1.11
Mean	3.33	3.40			1.69
Standard Deviation					
	7.17	8.67	0.367		5.56
Mean	12.10	9.90			4.93
Standard Deviation					
Mean	-4.78	-6.36	0.267		-4.44
Standard Deviation	10.44	8.00			5.48
	65.8%	72.1%	0.343		44.4%
	92.1%	95.1%	0.418		100.0%
	71.9%	86.9%	0.015	**	88.9%

Finally, the far-right column of Table 2 reports statistics for a small subset of the 524-press release sample. For 11 of the press releases, the CEO departure coincides with an announcement by the firm of the departing CEO's involvement with a federal or internal

investigation. Although the sample is quite small, it is worth noting that almost two-thirds (63.6%) of these press releases (excluding the disclaimer statement) have more negative words than positive words.

In Table 3, we report the twenty most frequent positive and negative words tallied separately for voluntary and forced departures. For this analysis, we use only the text of the press release, excluding the disclaimer statement, because our earlier analysis shows that the word choice of the press release disclaimer statements is systematically more negative and different from the press release text. Occurrences of negated-positive words are excluded during the tally. Positive words and negative words are reported in Panel A and Panel B, respectively. Words are shown in italics if they appear in the list only for voluntary or forced departures, but not both.

Table 3: Twenty Most Frequent Positive and Negative Words in CEO Departure Press Releases.

Panel A: Twenty Most Frequent Positive Words

Voluntary Departures		Forced Departures	
Word	% of PRs	Word	% of PRs
LEADERSHIP	77.68%	EFFECTIVE	70.59%
EFFECTIVE	67.43%	LEADERSHIP	70.59%
LEADING	57.86%	LEADING	54.12%
STRONG	50.80%	STRONG	41.18%
SUCCESS	37.13%	SUCCESS	32.94%
GREAT	32.12%	BEST	31.76%
OPPORTUNITY	28.47%	GREAT	31.76%
OPPORTUNITIES	28.02%	OPPORTUNITIES	31.76%
PLEASED	27.56%	CONFIDENT	28.24%
CONFIDENT	27.33%	*IMPROVE*	27.06%
BEST	27.11%	PLEASED	23.53%
EXCITED	24.83%	OPPORTUNITY	22.35%
SUCCESSFUL	23.92%	SUCCESSFUL	21.18%
SUCCEED	20.50%	INNOVATIVE	18.82%
SMOOTH	17.31%	*EXCEPTIONAL*	14.12%
INNOVATIVE	15.72%	EXCITED	14.12%
PROFITABILITY	14.81%	PROFITABILITY	14.12%
HONORED	14.58%	*ENHANCE*	12.94%
SUCCESSFULLY	14.58%	*IMPROVED*	12.94%
EXCELLENT	13.44%	*PROFITABLE*	12.94%

Table 3: Twenty Most Frequent Positive and Negative Words in CEO Departure Press Releases.
(continued)

Panel B: Twenty Most Frequent Negative Words

Voluntary Departures		Forced Departures	
Word	% of PRs	Word	% of PRs
CHALLENGES	12.30%	RESIGNED	40.00%
CHALLENGING	11.39%	RESIGNATION	18.82%
CRITICAL	10.71%	CRITICAL	15.29%
RESIGNED	9.57%	CHALLENGING	12.94%
DIFFICULT	8.88%	LOSS	11.76%
RESTRUCTURING	7.52%	CHALLENGES	10.59%
RESIGNATION	5.69%	DIFFICULT	10.59%
CHALLENGE	4.56%	RESIGN	10.59%
FORCE	4.10%	*INVESTIGATION*	8.24%
ILL	3.87%	RESIGNS	8.24%
AGAINST	3.64%	RESTRUCTURING	8.24%
LATE	3.64%	FORCE	5.88%
CLOSING	3.42%	AGAINST	4.71%
DOWNTURN	3.19%	*TERMINATED*	4.71%
LOSS	3.19%	*DISCLOSED*	3.53%
RESIGNS	2.96%	DOWNTURN	3.53%
RESIGN	2.73%	ILL	3.53%
CRISIS	2.51%	*IMPAIRMENT*	3.53%
MISS	2.51%	LATE	3.53%
LIE	2.28%	*LITIGATION*	3.53%

Intriguingly, fifteen of the twenty most frequently-used positive words and fifteen of the twenty most frequently-used negative words that appear in the press releases for voluntary departures are common to those for forced departures. The words *effective* and *leadership* are quite common, used in more than two-thirds of the press releases for both voluntary and forced departures. More than half of the press releases use the word *leading*, regardless of whether the departure is voluntary or forced. Given that there are so many positive and negative words in the Loughran and McDonald (2011) dictionary, the commonality of words that appear in the press releases for voluntary and forced departures is remarkable. The main difference for voluntary and forced departures is in the frequency of the negative words *resigned* and *resignation*, which occur for both types of departures but occur twice as often for forced departures.

The results in Table 2 indicate that the percentage of press releases with number of negative words greater than number of positive words is higher for forced departures than for voluntary departures and highest when the departure coincides with an announcement involving a federal or internal investigation. The univariate analysis in Table 2 also shows that the mean of the number of positive words minus the number of negative words is lower for forced departures than for voluntary departures and lowest when the departure coincides with an announcement involving a federal or internal investigation. Our final analysis of the tone of the press releases is a regression analysis to further examine these relationships while controlling for other firm

variables. Our dependent variable is the number of negative words minus number of positive words. The independent variables include a *forced* dummy variable, which is set to 1 for forced departures, and an *investigation* dummy variable, which is set to 1 if the departure coincides with an announcement involving a federal or internal investigation. Based on the results in Table 2, we expect the dependent variable to be positively related to both variables (i.e., the number of negative words relative to the number of positive words will be higher for forced departures and for departures that coincide with an investigation announcement).

We include control variables for the natural log of market capitalization, the natural log of book-to-market, and CEO power. We include market cap because larger firms may have more resources than smaller firms to invest in writing press releases with a positive tone. Firms with lower book-to-market ("growth" firms) may have greater incentive to project a positive outlook. More powerful CEOs may have greater influence over the final tone of press release.

For some of the press release observations, book-to-market is negative or information for the CEO power variable is unavailable. Therefore, we estimate the model for 3 specifications. In model 1, we include the *forced* and *investigation* dummy variables and market capitalization and estimate the model for all 524 observations. In model 2, we add the book-to-market variable, losing 25 observations. We then estimate model 3, adding the CEO power variable and losing another 17 observations. We estimate the 3 models using the dependent variable determined using the entire press release including the disclaimer. We then re-estimate the 3 models using the dependent variable obtained from the text without the disclaimer.

Results of the regressions are reported in Table 4. In each of the 6 regressions, the constant is negative and significant, consistent with the earlier observation that on average, when the departure is voluntary, the number of negative words is less than the number of positive words in the press release. In all 6 regressions, the estimates for the *forced* and *investigation* dummy variables are positive and significant, consistent with our expectations. The only control variable that is significant at conventional levels is the market cap variable, which is negative, consistent with our expectation that larger firms may have more resources than smaller firms to invest in writing press releases with a positive tone. We conclude that the regressions confirm the earlier univariate results as to the relationship between tone and whether departures are forced or voluntary departures and for departures that coincide with investigations. Including the disclaimer when determining the dependent variable does not change the signs or significance of the estimates.

Our expectation was that growth firms (i.e., firms with a low book-to-market) would have greater incentive to issue more positive press releases, but the regression estimates for the book-to-market coefficient are not different from zero at conventional levels. A possible explanation is that some of the high book-to-market firms in our sample are not value firms but instead are firms that suffered reduced growth prospects and, as a result, severe stock price declines, under the tenure of the departing CEO. These firms would have a smaller market cap than at the beginning of the CEO's tenure. Thus, the results that we observe in the regression for market cap (tone less positive for smaller firms) and book-to-market (not statistically significant at conventional levels) could reflect the influence of these firms in the sample. In other words, the

results are consistent with a hypothesis that firms issue less positive press releases when the CEO leaves with a legacy of having disappointed the firms' investors.[1]

Table 4. Regression Results.							
Dependent Variable Is Number of Negative Words Minus Number of Positive Words.							
	Press Release Including Disclaimer				Press Release Excluding Disclaimer		
	(1)	(2)	(3)		(1)	(2)	(3)
forced	3.7670***	3.5766***	4.0286***		2.0523**	2.3297**	2.7215***
	(0.003)	(0.006)	(0.002)		(0.031)	(0.014)	(0.003)
investigation	9.2530***	9.7061***	9.3566***		10.3242***	10.0926***	9.8508***
	(0.010)	(0.007)	(0.010)		(0.001)	(0.002)	(0.002)
ln_mktcap	-0.8167***	-0.6865***	-0.7098**		-0.9284***	-0.9183***	-0.9859***
	(0.001)	(0.009)	(0.017)		(0.000)	(0.000)	(0.000)
ln_book_to_market		0.5561	0.3983			0.0152	-0.1257
		(0.352)	(0.523)			(0.969)	(0.758)
CEO power			-0.7461				-0.6106
			(0.565)				(0.426)
constant	-4.3841***	-5.0288***	-4.6248***		-6.6933***	-6.7897***	-6.2367***
	(0.002)	(0.001)	(0.003)		(0.000)	(0.000)	(0.000)
Observations	524	499	482		524	499	482
Adjusted R-squared	0.046	0.044	0.048		0.088	0.089	0.104
Robust *p*- value in parentheses							
*** p <0.01, ** p <0.05,							

IV. Conclusions

Our findings are consistent with a hypothesis that departure press releases are intentionally positive in tone to allow the CEO to leave with dignity, regardless of whether the ultimate decision to leave is that of the CEO or the board. A positive tone in the press release not only allows the board to satisfy the CEO's desire to leave with honor but also to cast the firm in a positive light. The exceptions – negative-tone press releases – are almost always issued only when the board's hand is forced: the firm has to announce the departure of the CEO together with a federal or internal investigation.

We document that for departures classified as forced using the manual method commonly used in the academic literature, press releases are *less* positive than those for voluntary departures *on average*. But we also document that there is substantial dispersion in the tone measure (i.e., number of positive words less negative words) even for departures manually classified as *voluntary*. Given the conjecture of Schwartz-Ziv and Weisbach (2013) that

[1] We thank an anonymous reviewer for this suggestion.

academic research underestimates the percentage of forced or coerced CEO departures, a question for future research is whether using the press release tone, specifically the number of positive words less negative words, rather than the traditional manual binomial classification of "forced" or "voluntary" alone, provides additional insights when analyzing which factors carry weight in the board's decision to fire the CEO.

Finally, our regression results are consistent with a hypothesis that firms issue less positive press releases when the CEO has disappointed the firms' investors. Future research could examine whether the tone of the press release impacts how the market reacts to the CEO turnover announcement, particularly taking into account how the firm's stock has performed under the departing CEO's time at the helm.[2]

[2] We thank an anonymous reviewer for this suggestion.

References

Hazarika, S., Karpoff, J.M., & Nahata, R. (2012). Internal corporate governance, CEO turnover, and earnings management. *Journal of Financial Economics, 104*(1), 44-69.

Jenter, D., & Kanaan, F. (2015). CEO turnover and relative performance evaluation. *Journal of Finance, 70*(5), 2155-2183.

Loughran, T., & McDonald, B. (2011). When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. *Journal of Finance, 66*(1), 35-65.

McLaren-Hankin, Y. (2008). 'We expect to report on significant progress in our product pipeline in the coming year': Hedging forward-looking statements in corporate press releases. *Discourse Studies, 10*(5), 635-654.

Parrino, R. (1997). CEO turnover and outside succession: A cross-sectional analysis. *Journal of Financial Economics, 46*(2), 165-197.

Schwartz-Ziv, M., & Weisbach, M.S. (2013). What do boards really do? Evidence from minutes of board meetings. *Journal of Financial Economics, 108*(2), 349-366.

Financial Flexibility and the Moderating Role of Principal-principal Conflict

Stacey A. Estwick

Abstract

This paper examined the ability of principal-principal conflict to moderate the relationship between financial flexibility and its outcomes, namely investment propensity and dividend payout. Financial flexibility was measured using triple indicators of liquidity, internal funds, and spare leverage capacity. This research used a sample of publicly listed firms in the Caribbean to examine this issue and conducted a secondary data analysis of financial statement data using Generalized Methods of Moments techniques. Testing revealed that principal-principal agency negatively moderates the relationship between financial flexibility and dividend payouts, and positively moderates the relationship between financial flexibility and investment propensity. The results of this study suggested that concentrated ownership may at times positively impact the benefits of financial flexibility through higher levels of investment, but lower dividends maybe paid in the interest of maintaining future financial flexibility. These results reinforce the need for a customized approach to the setting of appropriate corporate governance policy for firms in transitioning markets, which limits the possibility of expropriation of minority shareholders, while promoting the investment benefits and prudent financial management which comes with the identification of block holder ownership.

I. Introduction

Financial flexibility has received notable attention in finance literature since the start of the 2008 Global Financial Crisis. Financial flexibility was defined by Byoun (2008) as a firm's ability to mobilize its financial resources, in order to take actions in response to uncertainties. It has been associated with higher levels of investment (Marchica & Mura, 2010) and higher levels of dividend payout (Oded, 2008). Contemporary research on financial flexibility also suggests that the key to a firm's ability to survive during the recession is dependent on its financial flexibility (Bancel & Mittoo, 2011). Given the value of financial flexibility, it is important that researchers examine this phenomenon across various markets, considering any unique market characteristics that would hinder the firm from recognizing the benefits of financial flexibility. Indeed, Arslan-Ayaydin, Florackis and Ozkan (2014) called for financial flexibility to be examined across various jurisdictions since legal and economic conditions may cause the value of financial flexibility to vary.

Extant literature on the ownership characteristics of the firm highlights an ownership feature of firms in developing markets that differentiates them from firms in developed jurisdictions such as the USA and Canada. In developed economies ownership is dispersed and there is a possibility for owner-manager agency conflict. However, in many emerging economies, including the Caribbean, firms have concentrated ownership. Research suggests that this may result in principal-principal (PP) agency conflict (Young, Ahlstrom, Bruton & Jiang, 2008). Such conflict was defined by La-Porta, Lopez-de-Silanes, Shleifer and Vishny (1997) as the pursuit of self-interest of majority shareholders to the detriment of minority shareholders. Maury and Pajuste (2005) stated that such conflict involved issues such as the expropriation of assets for private use, and non-value maximizing decision-making. This study examined the moderating role of PP conflict in recognizing the benefits of financial flexibility in the Caribbean.

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PP conflict has traditionally been associated with and examined within corporate governance research (Young et al., 2008). However, the scope of this research transferred the concept of PP conflict into the realm of corporate finance, and explicitly considered the impact of this phenomenon on the corporate financial practices of the firm. Nonetheless, this research has implications for institutional policymakers. While traditional corporate governance policies have been aimed at the control of owner-manager agency, the management of financial flexibility under PP agency may necessitate differing corporate governance policies to ensure the maximization of shareholder wealth.

This study makes an important contribution to the body of knowledge on financial flexibility. Financial flexibility has been defined as reserves of untapped borrowing power (Modigliani & Miller, 1963). However, this study responds to the call of Bancel and Mittoo (2011) who suggested that the concept of financial flexibility be extended to include other precautionary resources such as liquidity and transitory debt. In addition, the study advanced a conceptual model that depicted PP conflict as a critical moderator in recognizing the benefits of financial flexibility. A review of the extant literature revealed that this has not yet been investigated by finance researchers, as most empirical efforts have focused on direct effects models.

In light of the above, the study sought to address the following two objectives:

- To determine the value of financial flexibility for the investment and payout policies of firms in underdeveloped capital markets.
- To assess the moderating impact of PP conflict on recognizing the benefits of financial flexibility.

The introduction of this study is followed by the review of the literature and presentation of the conceptual framework. This review is by no means exhaustive, but represents what the author believes is critical in the understanding of the study's conceptual framework. This is followed by the methodology used in the study and then the presentation and analysis of the findings. The final section of the study includes the implications of the results for theory and practice, areas for future research and the limitations of the study.

II. Literature Review and Conceptual framework

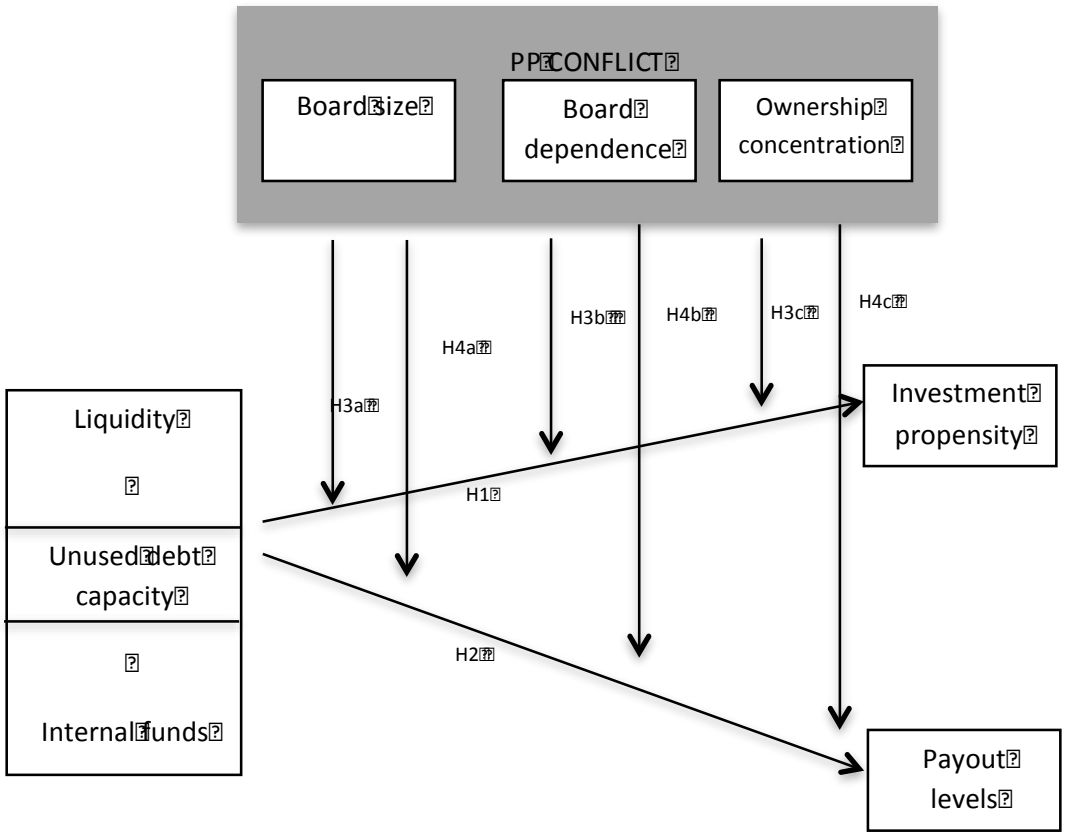
Figure I is a diagrammatic representation of the model of this study, showing the consequences of financial flexibility, and the potential moderating role of PP conflict. This is based on a review of the literature related to financial flexibility, its indicators, and PP conflict. These relationships are set in the context of Caribbean firms, which operate under high levels of capital markets constraints (James, 1996), high levels of concentrated ownership, and weak corporate governance mechanisms (Chong & Lopez-de-Silanes, 2007).

Financial flexibility

Since the early work of Modigliani and Miller (1963), capital structure research has focused on two main theories that attempted to use realistic assumptions in the development of their models: the Static Trade-off theory and the Pecking order theory. Unfortunately, these two theories were not supported by strong empirical evidence and this led contemporary researchers in the area of capital structure policy to explore other determinants of capital structure.

In 2001, Graham and Harvey conducted a survey on the practice of corporate finance. This study was motivated by the reality that finance managers are less likely to follow the mainstream early capital structure theories. They found limited support for traditional theories, and discovered that the need to maintain financial flexibility was a main driver of corporate finance decisions, as identified by CFO survey.

Figure 1: The moderating role of PP conflict



Traditional studies measured financial flexibility as the degree of spare leverage capacity, and gave no consideration to other determinants of financial flexibility. This is indeed a notable limitation given the fact the Graham and Harvey's (2001) study hinted at the importance of liquidity and transitory debt in managing the firm's finances. This is also a significant oversight due to the emphasis which the Pecking order theory places on the role of internal funds. The use of payback criteria by managers in evaluating investment decisions (Danielson & Scott, 2006) highlights a focus on liquidity by many finance managers, and this points to some level of interaction between treasury management and capital budgeting policy. Furthermore, Arslan-Ayaydin et al. (2014) studied the impact of financial flexibility on firm performance and found that these firms attained financial flexibility through large cash balances and conservative leverage policies. Hence, in addition to spare debt capacity, this study utilized liquidity and internal funds as indicators of financial flexibility.

Financial flexibility and investment propensity

Myers (1977) suggested a link between capital structure and capital budgeting theory. However, the link between financial flexibility and capital budgeting decisions is underexplored. The work of Marchica and Mura (2010) is one of the main studies which examined this relationship. They found that the financially flexible firm invested through its surplus debt capacity. Although prior research has linked financial flexibility to spare debt capacity, the precautionary motive and the transaction cost motive for holding cash suggest that liquidity and internal funds would lead to higher levels of investment (Keynes, 1973). The precautionary motive states that the firm can use cash to fund its activities and investments if other sources of capital are not available, and according to the transaction cost motive, at a low cost. Indeed, Denis and Sibilkov (2010) found that greater cash levels were associated with higher levels of investment for constrained firms. Khurana and Pereira (2006)

and Almeida, Campello and Weisbach (2011) posited that financial constraints caused firms to accumulate higher cash holdings to fund future investment projects. As Chirinko and Schaller (1995) claimed, liquidity and finance constraints have proven to be significant determinants of business spending.

The expectation exists that there will be a positive relationship between debt capacity and the investment propensity of the firm. A firm with low debt capacity will invest less than a firm with high debt capacity since they do not have much financial slack. This is in line with the findings of Marchica and Mura (2010), who asserted that financially flexible firms invested more, and this was funded by spare leverage capacity. In agreement, Varouj, Geb, and Qiu (2005) found that high leverage was associated with low levels of investing.

Hence, the first hypothesis is:

H1**:** *Financial flexibility will have a positive relationship with the investment propensity of the firm.*

Financial flexibility and dividend payout

The determinants of dividend policy have been studied since the early days of Lintner (1956) in which he found the changes in earnings and existing dividend rates were the most critical determinants of a company's dividend decision. Recent research in this area continues to yield mixed findings. Afza and Mirza (2011) found that managerial and individual ownership, cash flow sensitivity, leverage and size were negatively correlated to dividend payout, while operating cash-flow and profitability were positively related to cash dividend. Managerial ownership, individual ownership, operating cash flow and size were the most significant determinants of dividend behaviour. A more recent study of the determinants of dividend policy in Greece by Patra, Poshakwale and Ow-Yong (2012) found that liquidity increased the probability to pay dividends.

Research has found that financially flexible firms pay higher levels of dividends (Oded, 2008). Lie (2005) highlighted a significant positive relationship between the level of financial flexibility in the form of spare leverage capacity, and the payout ratio of the firm. Furthermore, DeAngelo and DeAngelo (2007) found that firms will pay out more cash to shareholders in pursuit of financial flexibility.

In this study it is expected that high liquidity levels will lead to higher dividend payouts. This position opposes the arguments of Afza and Mirza (2011), who proposed that higher liquidity signals an attitude of savings toward profitable investment opportunities, resulting in lower dividend payouts for shareholders. Based on signalling theory, dividends are seen as a signal to investors about the future prospects of the firm (John & Williams, 1985; Miller & Rock, 1985). Companies are expected to maintain higher levels of liquidity if they do not have onerous debt obligations. Firms with higher liquidity should then return higher dividends to shareholders as evidence of the firm's anticipation of large free cash flows, and higher levels of internal funds. Indeed, Darling (1957) found that dividends were associated with high liquidity. Opler, Pinkowitz and Williamson (1999) also found that payouts to shareholders increased with higher levels of cash. Indeed, Amidu and Abor (2006) claimed there was a positive relationship between cash flow and dividend payout. Hence, firms with high levels of liquidity may be motivated to use dividends as a way of returning cash to shareholders. This may especially be so in the case of firms with concentrated ownership which focus on maximizing returns to block holders.

It is expected that higher levels of internal funds will result in higher dividend payments. As identified in the aforementioned literature, the decision to pay dividends is dependent on cash flow, and profitability (Afza & Mirza, 2011; Patra et al., 2012), which are both valuable contributors to the internal funds position of the firm. DeAngelo, DeAngelo and Stulz (2006) found a positive relationship between internal funds and dividend payout. They continued to argue that dividends are a valuable governance tool for firms because they help avoid asset structures that allow managers to make value-reducing decisions.

A relationship between debt capacity and dividend payments should also exist. Patra et al. (2012) argued that leveraged firms with low debt capacity maybe restricted from payment of dividends, since lenders may view excessive dividend payments as unnecessary. In addition, low debt capacity may result from low cash flows and internal funds, which have a negative effect on the payment of dividends to shareholders. Bradley, Capozza and Seguin (1998) argued that high debt levels increased cash flow volatility and led to lower levels of dividends. They also suggested that the debt covenants of high debt may prevent the payment of high levels of dividends. OOi (2001) found a negative relationship between leverage levels and dividend payouts. They argued that this relationship arose since firms with high debt would be forced to rely on retained earnings to pay dividends, leading to lower dividends.

It may be argued that the alternative situation can arise where, in line with the propositions of the signaling theory (Miller & Rock, 1985), firms with high leverage and low debt capacity may pay even higher dividends to signal to the market that the firm is in a position to afford the obligations brought about by a large debt burden. Research conducted by Robinson (2006) on dividend policy in Barbados suggested that firms maintained a consistent dividend policy, since investors valued stocks with high dividend payments. This study contends that this may not be seen a sound financial management especially under constrained market conditions and high levels of uncertainty, and boards may vote against paying dividends in times when there are large debt obligations, as a trade-off for maintaining financial flexibility. Based on the aforementioned reasoning, hypothesis 2 is:

> ***H2:*** *Financial flexibility will have a positive relationship with the dividend payout levels of the firm.*

PP conflict

Past finance studies included traditional agency as a control variable in their models (Marchica & Mura, 2010), while some researchers explicitly considered the link between owner-manager agency and financial flexibility (Oded, 2008). However, although traditional corporate governance research was founded on the premise that share ownership was widely dispersed, subsequent studies found that many companies had concentrated ownership (Denis & McConnell, 2003). In emerging economies, concentrated ownership is an underlying cause of PP conflict, and serves to only confound the agency problem (Faccio, Lang & Young, 2010). Young et al. (2008) also stated that dominant ownership is a cause of PP conflict. They described PP conflict as including expropriation in the form of transferring of assets and engaging in non-value added managerial decision-making. It has been argued that the impact of such PP conflict is dependent on the ability of the company's board of directors to maintain an effective corporate governance environment (Young et al., 2008).

The moderating role of PP conflict

This research conceptualizes that PP conflict can be a negative moderator in the relationship between financial flexibility and its benefits. While a review of the extant literature on financial flexibility revealed a positive effect on investment propensity and the payout of the firm, PP conflict has been found in many cases to have an effect on these two aspects of financial management. It has been argued that the existence of PP conflict may result in non-value maximizing decision-making (Lewellyn & Muller-Kahle, 2012) through the alteration of the corporate governance process (Young et al., 2008).

The negative effects of a weak corporate governance environment have been prominently highlighted in the literature. Jensen (1986) argued that where corporate governance is low, managers retain larger quantities of cash to pursue personal interests. Harford (1999) and Kalcheva and Lins (2007) found that excess cash led to value-decreasing decisions under poor governance. A recent study of corporate governance and financial risk conducted by McNulty, Florackis and Ormrod (2013) found that the effectiveness of the board had a direct impact on the financial risks taken by the firm's management. Lewellyn

and Muller-Kahle (2012) and Muller-Kahle and Lewellyn (2011) revealed a relationship between the configuration of the board and excessively risky sub-prime investment decisions.

The existence of PP conflict may lead to lower dividends due to expropriation of company assets. Maury and Pajuste (2002) found that the existence of dominant shareholders had a negative relationship with the level of dividends paid. This was attributed to the potential collusion between management and the dominant shareholder, which led to cash being diverted to the private benefits of blockholders.

One of the main aspects of financial management, which increases the concern for principal-principal conflict, is the existence of surplus liquidity. This concern is built on evidence of funneling and expropriation which may exist in the presence of dominant owners (Maury & Pajuste, 2005). However, Pindado, Requejo and Torre (2012) argued that dividend payments are higher in firms with such surplus liquidity, in order to decrease the amount of cash on hand and dispel the fears of minority shareholders.

With the presence of controlling shareholders, the dividend payout decision rests in the hands of the main block holder(s). If majority shareholders opt to pay high dividends as the sole means of extracting returns from the company, their returns are lessened through the necessity to share the dividend with minority shareholders. However, majority shareholders have the ability to extract assets in ways that would eliminate the need to share the benefit with minority shareholders. This may reduce the cash available for investing and dividend payments. PP conflict has also been found to increase the cost of equity (La Porta et al., 1997; Lins, 2003). In such circumstances, this may decrease the ability of the firm to raise additional funds for investment, resulting in lower levels of investment. This logic was supported by Morck, Wolfenson and Yeung (2005).

The aforementioned evidence to date suggests that while firms should benefit from being financially flexible, the existence of PP conflict may serve to limit these benefits. This reasoning supports the proposition of hypotheses 3 and 4:

> ***H3*****:** *Principal-principal conflict will moderate the relationship between financial flexibility and the investment propensity of the firm.*
>
> ***H4*****:** *Principal-principal conflict will moderate the relationship between financial flexibility and the payout levels of the firm.*

III. Methodology

In this study, a deductive approach was used, where numerical data was collected to allow the researcher to make generalizations about the operation of financial flexibility under PP conflict in the Caribbean. An analysis of secondary data was conducted, since the variables to be measured were easily extracted from financial statement data.

The study used panel data regressions. The data used was obtained from publicly available annual reports for the companies included in the sample. These reports included financial statements and corporate governance disclosures, which were needed to extract the information to calculate the ratios needed for variable measurement. As is required by International Accounting Standards, an independent auditor verified all information included in these annual reports and assessed this information for bias and subjectivity. Hence, data obtained from these reports was considered reliable and credible. Use of secondary data also avoided the cost necessary in using surveys to obtain this data.

Sample description

The study utilized the listed companies of three stock exchanges in the Caribbean to extract the necessary data. Conceptually, firms in such constrained markets should place high value on financial flexibility, due to their capital market constraints. The listed companies in

the Caribbean were therefore considered ideal for the testing of financial flexibility under the PP conflict of high owner concentration. The Jamaica Stock Exchange, the Trinidad Stock Exchange, and the Barbados Stock Exchange were chosen for their comparative level of development, and this resulted in easier access to the financial information of these firms.

The sample included 74 non-financial companies on these stock exchanges, for the period 2006 to 2012. It included those firms listed on the junior market as well as the main markets. Financial companies were excluded from the sample since their capital structure differs from other companies. This sample gave cross-sectional data of 518 observations across 7 firm years, which was considered adequate observations for the statistical data analysis techniques utilized.

Variable measurement

Financial flexibility

The model used triple indicators of financial flexibility, which is unlike prior studies in the area (DeAngelo & DeAngelo, 2007; Marchica & Mura, 2010; Oded, 2008). Research thus far suggests that liquidity, internal funds and debt capacity are three of the main elements of financial flexibility (Bancel & Mittoo, 2011). Bouchani and Ghanbari (2015) in their study used leverage and liquidity ratios as indicators of financial flexibility. In addition, in light of the constrained market conditions of the Caribbean, it is rational to believe that firms in this region will try to increase financial flexibility by increasing liquidity levels and internal funds, along with maintaining low leverage levels. Hence, liquidity, internal funds and spare debt capacity were used as indicators of financial flexibility.

PP conflict

The model proposed in this conceptual framework utilized some measures of PP conflict which have been proposed in contemporary studies. In particular, the model built on the arguments of La Porta et al. (1997) and Young et al. (2008) who noted that PP conflict is of concern in firms with weak governance and concentrated ownership. Similar to prior research conducted by Hu, Tam and Tan (2010), the ownership concentration of the firm was used as one indicator of the level of PP conflict.

The remaining indicators of PP conflict focussed on characteristics of the board of directors. Research conducted by Fama and Jensen (1983) suggested that boards are an integral part of the corporate governance structure of the firm, and corporate board reform has focused on board composition and independence (Baysinger & Butler, 1985). Jensen and Meckling (1979) and Shleifer and Vishny (1986) argued that an independent board could offset the loss in value caused by having a dominant shareholder. This supported the use of the level of board dependence as an indicator of the PP conflict of the firm.

The final indicator of PP conflict was board size. A recent study by Su, Xu and Phan (2008) in the emerging economy of China found that large boards were associated with high levels of ownership concentration, and were an indicator of PP agency conflict.

Investment propensity

Investment propensity refers to the ability of the firm to take on more capital investment projects. Lemmon and Roberts (2010) computed net investment as the sum of capital expenditure, acquisitions, and increase in investment less sale of fixed assets, scaled by total assets. This measure captured all changes in long-term assets occurring during the financial period, which is consistent with and is considered appropriate for the measurement of investment propensity.

Payout level

The payout level of the firm is defined as the percentage of net income paid as dividends to the shareholders of the firm. Although some studies included a measurement of

repurchases in the payout variable, in the Caribbean, repurchases have not been a feature of returning cash to shareholders (Robinson, 2006). Hence, this study found it appropriate to use a measure of cash dividends scaled by total assets to reflect the payout of the firm. This concurs with a vast majority of finance studies that examined payout, including Marchica and Mura (2010), and McNulty et al. (2013). Table I summarizes the calculations of the key study variables.

Table 1: Calculation of key study variables

Indicators/ Variables	Measurement
PP CONFLICT	
Ownership concentration	Percentage of shares held by substantial interests (shareholders with greater than 5% shareholdings)
Board dependence	Percentage of independent directors on the board
Board size	Number of seats on the board
FINANCIAL FLEXIBILITY	
Liquidity	Cash scaled by total assets
Debt capacity	Tangibility/Total assets =((0.715*receivables) +(.547* inventory) + (.535* PPE))/ Total assets
Unused debt capacity	DC - (Debt scaled by total assets)
Internal funds	Retained earnings scaled by total assets
OTHER CONSTRUCTS	
Investment propensity	Capital expenditure, acquisitions, and increase in investment less sale of fixed assets, scaled by total assets
Dividend payout	Dividends scaled by total assets

Reliability and validity

Construct validity was improved by utilizing constructs from past studies on financial flexibility and PP conflict. The sample represented more than 60 percent of all Caribbean listed companies. This boosted external validity, since the specific focus of the study was the transition economy of the Caribbean. Internal validity was enhanced through the use of secondary data analysis, which allowed for greater control over the research process than research that is purely conducted in the field (Saunders, Lewis & Thornhill, 2009).

Concerns for reliability were addressed via the use of audited financial statements to extract the necessary data addressed the concerns for reliability. These statements were obtained from the signed and published annual reports. The data in the financial statements is checked for error and bias by an independent auditor, and is certified as correct prior to inclusion in the final annual report.

All data gathered was entered into Eviews statistical software Version 7 for analysis. Descriptive statistics and correlation coefficients were used to analyze the relationships between the various variables involved in the study. Panel data regression analyses were then used to test the hypotheses presented in the model. This was considered adequate since it

allowed for the multidimensional nature of the dataset, and also for the control of individual specific differences across companies. This method allowed for the input of various control variables, and the unobservable variables that would otherwise distort the results of the regressions. For the moderation testing, moderated panel regression analysis was utilized to test the relationships presented.

For each regression, the lagged dependent variable was included as an independent variable. This was supported by past studies which found that these lagged variables were determinants of the dependent variable. Due to the dynamic nature of the regression models, these regressions were conducted using Arellano and Bond 2-step Generalized Methods of Moments (GMM) estimators (Arellano & Bond, 1991) with White robust standard errors to account for heteroskedasticity. This method first differenced the data to eliminate the firm fixed effects, and then utilized lagged values of the regressors as instruments. Finance and economic literature suggests that the combination of lagged dependent variables and fixed effects leads to econometric bias (Flannery & Hankins, 2013). Arellano and Bond (AB) estimators have been found to provide reasonably accurate estimates of the independent variables in dynamic modeling. Although in the study conducted by Flannery and Hankins (2013), AB was found to perform worse when second order serial correlation was present, the impact was found to be non-significant

In accordance with the recommendations of Arellano and Bond (1991), diagnostic tests of the results of the regressions were performed. Arellano and Bond (1991) suggested that subsequent to the conduct of a dynamic panel regression, tests should be conducted for serial correlation and the appropriateness of the instruments used. For each regression, the assumption of no serial correlation in the disturbances was assessed by testing for first and second order serial correlation in the first-differenced residuals. While first order correlation may occur for AB GMM estimators, since the equation is first differenced, higher order correlation is unexpected as this indicates that some lags of the dependent variable are endogenous and maybe considered bad instruments. For these serial correlation tests, the null hypotheses were no first/second order serial correlation. The Sargan test of the over identifying restrictions was also conducted to assess the appropriateness of the instrument variables. The null hypothesis in this case was that the instrument variables are uncorrelated to the set of residuals, and hence are acceptable. The correlation tests and the Sargan tests obtained non-significant results. We can therefore deduce that there was no serial correlation, and accept the instruments used in the models.

Control variables

Regression analyses controlled for firm specific factors such as firm size, firm age, financial constraints and growth opportunities, as well as macroeconomic factors such as state of the economy (Al-Najjar, 2013; Denis & Sibilkov, 2010; Opler et al., 1999).

IV. Results

For the purposes of testing and analysis, the Model was divided into two phases. Phase I of the model examined the impact of financial flexibility on the dividend payout and investment propensity of the firm, while phase II investigated the moderating impact of PP conflict on the investment propensity and payout levels of the firm.

Phase I - Model specification

Eviews statistical software version 7 was used to generate the following regression models that resulted from the hypothesis development:

(H1)

$$inv_{ratio} = \alpha + \beta_1\, liquidity + \beta_2 udc + \beta_3 intfunds + \beta_4\, size + \beta_5\, firmage + \beta_6 finconst + \beta_7\, economy + \beta_8\, growthopp + \beta_9\, inv_{ratio_{t-1}} + \varepsilon$$

(H2)

$$payout = \alpha + \beta_1\, liquidity + \beta_2 udc + \beta_3 intfunds + \beta_4\, size + \beta_5\, firmage + \beta_6 finconst + \beta_7\, economy + \beta_8\, growthopp + \beta_9\, payout_{t-1} + \varepsilon$$

Correlations and descriptive statistics

Pearson's correlations were conducted between the variables used in the regression analyses. This analysis revealed significant results at the 1 percent and 5 percent level of significance.

According to descriptive statistics, firms across the sample exhibited an average age of 67 years, and a mean ownership concentration of 59 percent. Approximately 39 percent of the board members were dependent, and the average board size was 9 individuals. The mean levels of liquidity, internal funds, and unused debt capacity were 9 percent, 48 percent and 27 percent respectively. Statistics also found that the firms across the sample exhibited an average annual investment ratio of 4 percent, and an average annual payout of 27 percent. These averages did not differ significantly when compared to the averages obtained for 12 months. See Table 2 below.

Table 2: Descriptive Statistics

	Mean	Std. Deviation
own_conc	0.585	0.252
brd_dep	0.388	0.227
brd_size	8.399	2.894
Liquidity	0.086	0.093
UDC	0.269	0.170
Intfunds	0.478	0.256
Payout	0.275	1.403
inv_ratio	0.042	0.077
inv_12mths	0.040	0.071
pay_12months	0.250	1.440
Recession	0.519	0.500
Size	7.651	0.703
firm_age	67.456	34.563
fin_cons	-28.114	173.801
growth_op	1.714	3.391

Table 3: Pearson's Correlations

	recession	Size	firm_age	fin_cons	growth_op
	own_conc	brd_dep	brd_size	liquidity	UDC
own_conc	1				
brd_dep	.465**	1			
brd_size	-.440**	-.134*	1		
Liquidity	-.143*	-.192**	0.038	1	
UDC	.152**	0.06	-.193**	-.163**	1
intfunds	-0.014	-0.058	0.008	.252**	0.038
Payout	-0.009	-0.053	0.045	0.051	0.024
inv_ratio	.148**	0.049	-0.078	0.012	.127*
inv_12mths	.160**	0.063	0.011	-0.101	.231**
pay_12months	-0.015	-0.045	0.049	0.004	-0.01
recession	0.113	0.019	0.059	.151**	-.165**
Size	-.186**	-.162*	.394**	-0.001	-.145**
firm_age	-.135*	-.192**	.221**	-0.016	-0.051
fin_cons	-0.004	.220**	-0.013	-.282**	.206**
growth_op	.143*	-.173**	0.005	.226**	-0.015
	intfunds	payout	inv_ratio	inv_12mths	pay_12months
Intfunds	1				
Payout	0.03	1			
inv_ratio	-0.025	-0.007	1		
inv_12mths	-0.01	0.004	-.122*	1	
pay_12months	0.002	0.019	-0.033	-0.017	1
Recession	0.081	0.046	-0.095	-0.009	0.015
Size	-.258**	-0.033	.114*	0.103	-0.06
firm_age	0.013	0.045	-0.095	-0.056	0.056
fin_cons	-0.05	-0.061	0.099	0.105	-0.051
growth_op	-0.011	0.008	-0.044	-0.054	0.013

Recession	1				
Size	0.021	1			
firm_age	0.045	0.096	1		
fin_cons	-0.082	-0.027	0.102	1	
growth_op	.162**	-.119*	0.068	-.191**	1

Table 3 shows the Pearson's correlations between the main variables and the control variables at the 1% and 5% levels of significance. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Long-run performance testing

In addition to testing the predictors of the firm's current payout and investment levels, the regression models investigated the determinants of the firm's investment and payout 12 months ahead. Such testing was considered necessary since in financial management, current actions are often aimed at future plans. For example, Marchica and Mura (2010) in their investigation of the investment behavior of the firm found that the financially flexible firms were able to invest higher within 24 months of becoming financially flexible.

Table 4: Results of Long-run Testing

Investment - CURRENT					Investment-12 MONTHS			
Variable	Model 1	Model 2	Model 3		Variable	Model 1	Model 2	Model 3
INV_RATIO(-1)	0.0453 (0.0284)*	0.0240 (0.0273)*	0.0113 (0.0297)*		INV_12MTHS(-1)	0.3620 (0.0102)*	0.3228 (0.0074)*	0.2637 (0.0072)*
LIQUIDITY	-0.1074 (0.1380)*	-0.1104 (0.0085)*	-0.108 (0.0112)*		LIQUIDITY	0.1581 (0.0063)*	0.1504 (0.0032)*	0.1774 (0.0067)*
INTFUNDS		0.0319 (0.0130)*	0.0387 (0.0125)*		INTFUNDS		0.0942 (0.0025)*	0.0956 (0.0038)*
UDC			0.0124 (0.0087)		UDC			0.1747 (0.008)*
FIRM_AGE	-0.0054 (0.0006)*	-0.0050 (0.0005)*	-0.005 (0.0004)*		FIRM_AGE	-0.0044 (0.0001)*	-0.0046 (0.0001)*	-0.0034 (0.0001)*
SIZE	0.0081 (0.0081)*	0.0076 (0.0004)*	0.0078 (0.0004)*		SIZE	-0.0069 (0.0008)*	-0.0082 (0.0007)*	-0.0079 (0.0013)*
RECESSION	0.0241 (0.0025)*	0.0234 (0.0025)*	0.0238 (0.0025)*		RECESSION	0.0009 (0.0011)*	0.0017 (0.0008)*	0.0007 (0.0007)
GROWTH_OP	-0.0001 (0.0001)*	-0.0000 (0.0000)	0.0000 (0.0000)		GROWTH_OP	0.0007 (0.0003)*	0.0009 (0.0002)*	0.0011 (0.0004)*
FIN_CONS	-0.0000 (0.0001)	-0.0000 (0.0000)	0.0000 (0.0000)		FIN_CONS	0.0000 (0.0000)*	0.0000 (0.0000)*	0.0000 (0.0000)*
AR (1)	0.9953	0.9949	0.9959		AR (1)	0.9578	0.9654	0.9659
AR (2)	0.9998	0.9995	0.9995		AR (2)	0.9910	0.9906	0.9914
Sargan statistic (p-value)	0.3937	0.4109	0.4708		Sargan statistic (p-value)	0.1891	0.1901	0.1889

Table 4: Results of Long-run Testing (cont'd)

Payout - CURRENT					Payout - 12 MONTHS			
Variable	Model 1	Model 2	Model 3		Variable	Model 1	Model 2	Model 3
PAYOUT(-1)	-0.2386 (0.0001)*	-0.2395 (0.0002)*	-0.2402 (0.0004)*		PAY_12MOTHS(-1)	0.0804 (0.001)*	0.0994 (0.0024)*	0.0997 (0.0028)*
LIQUIDITY	14.6239 (0.0718)*	14.2276 (0.2188)*	15.4894 (0.6364)*		LIQUIDITY	0.2113 (0.3041)*	1.0741 (0.3363)	0.4129 (0.4045)
INTFUNDS		2.2179 (0.2529)*	2.2444 (0.3454)*		INTFUNDS		3.5291 (0.0891)*	3.5254 (0.1688)*
UDC			8.0853 (0.3643)*		UDC			-2.2483 (0.2786)*
SIZE	-0.9312 (0.0279)*	-1.0266 (0.0742)*	1.1219 (0.0789)*		SIZE	0.7231 (0.2072)*	0.5965 (0.2728)*	0.6623 (0.3121)*
FIRM_AGE	-0.2142 (0.002)*	-0.1909 (0.0062)*	0.1261 (0.0082)*		FIRM_AGE	0.1488 (0.0097)*	0.1752 (0.0115)*	0.1599 (0.0210)*
FIN_CONS	0.0000 (0.0000)*	0.0001 (0.0001)*	-0.0005 (0.0001)*		FIN_CONS	-0.0081 (0.0007)*	-0.0079 (0.0004)*	-0.008 (0.0006)*
RECESSION	2.5133 (0.0091)*	2.5193 (0.0253)*	-2.3243 (0.0438)*		RECESSION	-0.505 (0.1666)	-0.1763 (0.1536)	-0.193 (0.2686)
GROWTH_OP	-0.3722 (0.0001)*	-0.3409 (0.0177)*	0.4553 (0.0491)*		GROWTH_OP	0.4101 (0.0114)*	0.5765 (0.0153)*	0.6051 (0.0214)*
AR (1)	0.9999	0.9994	0.9991		AR (1)	0.9990	0.9918	0.9929
AR (2)	0.9999	0.9997	0.9995		AR (2)	0.9998	0.9999	0.9999
Sargan statistic (p-value)	0.3336	0.3219	0.3171		Sargan statistic (p-value)	0.5938	0.6130	0.6025

Standard errors are shown in brackets. * denotes significant results.

Results of moderation tests

For these tests, individual regression models were run for each indicator of PP conflict. These moderating effects were once again tested using Arellano and Bond 2-step GMM estimators, given the dynamic nature of the models. Since Model II was aimed at testing the moderating effects of PP conflict on the relationship between financial flexibility and its outcomes (i.e. capital investment and dividend payout), individual regression models were run for each indicator of PP conflict. The moderation testing involved centering the independent variables and creating interaction terms for use in the regression. This method was advanced by Aiken and West (1991). The interaction terms created were as follows:

Table 5: Interaction terms

Interaction term- code	Description
liqxownconc	Multiplication term created for the interaction between liquidity and ownership concentration.
udcxownconc	Multiplication term created for the interaction between unused debt capacity and ownership concentration.
intfundsxownconc	Multiplication term created for the interaction between internal funds and ownership concentration.
liqxbrddep	Multiplication term created for the interaction between liquidity and board dependence.
udcxbrddep	Multiplication term created for the interaction between unused debt capacity and board dependence.
intfundsxbrddep	Multiplication term created for the interaction between internal funds and board dependence.
liqxbrdsize	Multiplication term created for the interaction between liquidity and board size.
udcxbrdsize	Multiplication term created for the interaction between unused debt capacity and board size.
intfundsxbrdsize	Multiplication term created for the interaction between internal funds and

	board size.

Hypothesis 3: *Principal-principal conflict will moderate the relationship between financial flexibility and the investment propensity of the firm.*

(H3a)

$$inv_{ratio} = \alpha + \beta_1\, liquidity + \beta_2 udc + \beta_3 intfunds + \beta_4\, size + \beta_5\, firmage + \beta_6 finconst + \beta_7\, economy + \beta_8\, growthopp + \beta_9\, ownconc + \beta_{10}\, liqxownconc + \beta_{11}\, udcxownconc + \beta_{12}\, intfundsxowncinc + \beta_{13}\, inv_{ratio_{t-1}} + \varepsilon$$

(H3b)

$$inv_{ratio} = \alpha + \beta_1\, liquidity + \beta_2 udc + \beta_3 intfunds + \beta_4\, size + \beta_5\, firmage + \beta_6 finconst + \beta_7\, economy + \beta_8\, growthopp + \beta_9\, brdsize + \beta_{10}\, liqxbrdsize + \beta_{11}\, udcxbrdsize + \beta_{12}\, intfundsxbrdsize + \beta_{13}\, inv_{ratio_{t-1}} + \varepsilon$$

(H3c)

$$inv_{ratio} = \alpha + \beta_1\, liquidity + \beta_2 udc + \beta_3 intfunds + \beta_4\, size + \beta_5\, firmage + \beta_6 finconst + \beta_7\, economy + \beta_8\, growthopp + \beta_9\, brddep + \beta_{10}\, liqxbrddep + \beta_{11}\, udcxbrddep + \beta_{12}\, intfundsxbrddep + \beta_{13}\, inv_{ratio_{t-1}} + \varepsilon$$

Hypothesis 4**:** *Principal-principal conflict will moderate the relationship between financial flexibility and the payout levels of the firm.*

(H4a)

$$payout = \alpha + \beta_1\, liquidity + \beta_2 udc + \beta_3 intfunds + \beta_4\, size + \beta_5\, firmage + \beta_6 finconst + \beta_7\, economy + \beta_8\, growthopp + \beta_9\, ownconc + \beta_{10}\, liqxownconc + \beta_{11}\, udcxownconc + \beta_{12}\, intfundsxowncinc + \beta_{13}\, payout_{t-1} + \varepsilon$$

(H4b)

$$payout = \alpha + \beta_1\, liquidity + \beta_2 udc + \beta_3 intfunds + \beta_4\, size + \beta_5\, firmage + \beta_6 finconst + \beta_7\, economy + \beta_8\, growthopp + \beta_9\, brdsize + \beta_{10}\, liqxbrdsize + \beta_{11}\, udcxbrdsize + \beta_{12}\, intfundsxbrdsize + \beta_{13}\, payout_{t-1} + \varepsilon$$

(H4c)

$$payoyut = \alpha + \beta_1\, liquidity + \beta_2 udc + \beta_3 intfunds + \beta_4\, size + \beta_5\, firmage + \beta_6 finconst + \beta_7\, economy + \beta_8\, growthopp + \beta_9\, brddep + \beta_{10}\, liqxbrddep + \beta_{11}\, udcxbrddep + \beta_{12}\, intfundsxbrddep + \beta_{13}\, payout_{t-1} + \varepsilon$$

Table 6: Results of Model Testing: Investment Propensity

MODERATOR	OWN_CONC			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INV_RATIO (-1)	0.0852	0.0530	1.6076	0.1105
LIQUIDITY	-0.1060	0.0149	-7.1005	0.0000
UDC	0.0289	0.0221	1.3079	0.1933
INTFUNDS	0.0036	0.0144	0.2501	0.8029
OWN_CONC	0.0077	0.0084	0.9233	0.3576
LIQXOWNC	0.1639	0.1203	1.3626	0.1755
UDCXOWNC	-0.1296	0.1351	-0.9595	0.3391
INTFUNDSXOWNCON	0.0378	0.0432	0.8739	0.3839
FIN_CONS	0.0000	0.0000	1.6118	0.1096
FIRM_AGE	-0.0047	0.0008	-5.8811	0.0000
SIZE	0.0062	0.0032	1.9105	0.0584
GROWTH_OP	-0.0063	0.0023	-2.7391	0.0071
RECESSION	0.0208	0.0023	9.2143	0.0000
AR (1)				0.9902
AR (2)				0.9999
Sargan statistic (p-value)				0.3829
MODERATOR	BRD_DEP			
INV_RATIO (-1)	0.0880	0.1139	0.7724	0.4415
LIQUIDITY	-0.0999	0.0519	-1.9252	0.0567
UDC	0.0726	0.0440	1.6478	0.1022
INTFUNDS	-0.0139	0.0631	-0.2200	0.8262
BRD_DEP	-0.0262	0.0306	-0.8561	0.3938
LIQXBRDDEP	-0.0591	0.3230	-0.1830	0.8552
UDCXBRDDEP	0.0038	0.1903	0.0202	0.9839

INTFUNDSXBRDDEP	-0.0549	0.2453	-0.2238	0.8234
FIN_CONS	0.0000	0.0001	0.5000	0.6181
FIRM_AGE	-0.0059	0.0017	-3.5744	0.0005
SIZE	0.0248	0.0650	0.3808	0.7041
(Table VI cont'd) GROWTH_OP	-0.0097	0.0055	-1.7648	0.0803
RECESSION	0.0218	0.0079	2.7615	0.0067
AR (1)				0.9999
AR (2)				1.0000
Sargan statistic (p-value)				0.4818
MODERATOR	BRD_SIZE			
INV_RATIO (-1)	0.1005	0.0189	5.3282	0.0000
LIQUIDITY	-0.0751	0.0067	-11.1496	0.0000
UDC	0.0256	0.0132	1.9362	0.0549
INTFUNDS	0.0341	0.0160	2.1227	0.0356
BRD_SIZE	0.0010	0.0008	1.2310	0.2205
LIQXBRDSIZE	-0.0003	0.0084	-0.0366	0.9708
UDCXBRDSIZE	-0.0081	0.0020	-4.0416	0.0001
INTFUNDSXBRDSIZE	0.0027	0.0043	0.6376	0.5248
FIN_CONS	0.0000	0.0000	-2.9292	0.0040
FIRM_AGE	-0.0020	0.0006	-3.4455	0.0008
SIZE	0.0080	0.0009	9.4131	0.0000
GROWTH_OP	0.0000	0.0000	0.4136	0.6798
RECESSION	0.0082	0.0029	2.7796	0.0062
AR (1)				0.0000
AR (2)				0.3958
Sargan statistic (p-value)				0.4818

Table 6 shows the results of testing of the moderating impact of PP conflict on investment propensity, using moderated dynamic AB Testing. Results of autocorrelation testing and the Sargan test of the over-identifying restrictions are also displayed.

Table 7: Results of Moderation Testing: Prediction of Payout Levels

MODERATOR	OWN_CONC			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
PAYOUT(-1)	-0.2542	0.0015	-169.2109	0.0000
LIQUIDITY	14.4922	1.1433	12.6760	0.0000
UDC	7.2683	0.8936	8.1342	0.0000
INTFUNDS	4.3395	0.4243	10.2278	0.0000
OWN_CONC	-9.3502	0.5178	-18.0565	0.0000
LIQXOWNC	-127.0760	5.7153	-22.2343	0.0000
INTFUNDSXOWNCON	-17.7038	2.0349	-8.7001	0.0000
UDCXOWNC	-54.4673	4.5968	-11.8490	0.0000
SIZE	-0.7893	0.2215	-3.5643	0.0005
FIRM_AGE	0.0020	0.0151	0.1325	0.8947
RECESSION	2.6991	0.1850	14.5927	0.0000
GROWTH_OP	-0.1770	0.0915	-1.9338	0.0546
FIN_CONS	-0.0001	0.0007	-0.1708	0.8646
AR (1)				0.9995
AR (2)				0.9998
Sargan statistic (p-value)				0.3565
MODERATOR	BRD_DEP			
PAYOUT(-1)	-0.2336	0.0007	-332.6403	0.0000
LIQUIDITY	25.4724	1.2017	21.1975	0.0000
UDC	12.7031	0.7301	17.3981	0.0000
INTFUNDS	5.4306	1.6421	3.3071	0.0012
BRD_DEP	-0.4887	0.9579	-0.5102	0.6106
LIQXBRDDEP	-113.4358	13.5032	-8.4007	0.0000

UDCXBRDDEP	-15.5895	5.4130	-2.8800	0.0045
INTFUNDSXBRDDEP	-8.4194	4.9338	-1.7065	0.0899
FIN_CONS	0.0000	0.0012	-0.0119	0.9905
FIRM_AGE	0.2385	0.0309	7.7105	0.0000
SIZE	-3.2975	0.5553	-5.9384	0.0000
(Table VII cont'd)				
GROWTH_OP	-0.6139	0.0806	-7.6144	0.0000
AR (1)				0.9067
AR (2)				0.9084
Sargan statistic (p-value)				0.4500
MODERATOR	BRD_SIZE			
PAYOUT(-1)	-0.2669	0.0006	-457.2632	0.0000
LIQUIDITY	21.4702	1.2881	16.6688	0.0000
UDC	10.7867	0.8972	12.0227	0.0000
INTFUNDS	3.9809	0.8117	4.9043	0.0000
BRD_SIZE	-0.2467	0.0620	-3.9792	0.0001
LIQXBRDSIZE	8.9250	0.2895	30.8279	0.0000
INTFUNDSXBRDSIZE	1.4277	0.3881	3.6785	0.0003
UDCXBRDSIZE	7.4220	0.1283	57.8566	0.0000
SIZE	-1.6230	0.1292	-12.5646	0.0000
FIRM_AGE	-0.3487	0.0171	-20.4117	0.0000
RECESSION	3.3628	0.0676	49.7719	0.0000
GROWTH_OP	-0.2653	0.0837	-3.1714	0.0018
FIN_CONS	-0.0013	0.0004	-2.7876	0.0058
AR (1)				1.0000
AR (2)				1.0000
Sargan statistic (p-value)				0.308023

Table 7 shows the results of testing of the moderating impact of PP conflict on payout, using moderated dynamic AB Testing. Results of autocorrelation testing and the Sargan test of the over identifying restrictions are also displayed.

For those interactions that proved to be significant, interaction plots were used to plot moderation results. This approach used measures suggested by Aiken and West (1991), and Dawson (2014).

V. Analysis of Results

Indicators of PP conflict

The early work of Jensen and Meckling (1979) and Li (1994) found that there was a positive relationship between the ownership concentration of the firm and the degree of board dependence. Li (1994) suggested that this was because large shareholders used seats on the board of directors to monitor the activities of management. An examination of the Pearson's correlation testing indeed found that higher ownership concentration was related to higher levels of board dependence.

The use of board size as an indicator of PP conflict in this study was based on the evidence of Su et al. (2008) who found that a relationship existed between board size and the levels of ownership concentration, and PP agency conflict. In this study it was discovered that higher levels of ownership concentration were associated with significantly smaller boards. This initial relationship exhibits partial support for the arguments of Su et al. (2008) who asserted that with high ownership concentration, the monitoring of the firm shifts to the boardroom as opposed to management, since block holder owners face high liquidity risks, and will monitor and take direct actions at the board level. This shift may then result in the formation of smaller and more effective boards.

Financial flexibility and investment propensity

Results showed that liquidity levels, and levels of internal equity were significantly related to the company's level of investment in the past year (β=-.1080, $p<.05$ and β=.0387, $p<.05$ respectively), and also significant predictors of the company's investment levels in the ensuing 12 months (β=.1774, $p<.0.5$ and β=.0956, $p<.0.5$ respectively). The level of unused debt capacity was only found to be a significant predictor of the 12-month levels of investment (β=.1747, $p<.0.5$). Higher levels of liquidity were associated with significantly lower levels of investing in the past year and higher levels of investments within the ensuing 12 months. Higher levels of internal funds were associated with significantly higher levels of current investing and long-term investing (i.e. the ensuing 12 months). Higher levels of unused debt capacity were associated with significantly higher levels of investing in the ensuing 12 months.

These findings are in line with the expectations of the conceptual framework of this study. The negative relationship between cash holdings and the level of investment within the past 12 months suggests that as current levels of investment increase the stock of liquid cash decreases. Hoshi, Kashyap, and Scharfstein (1991) found that for firms without bank ties, a stock of cash and cash equivalents significantly contributed to the levels of investment of the firm. This study also concurs with the findings of Arslan-Ayaydin et al. (2014). Fazarri, Hubbard and Petersen (1988) also partially supported these findings, albeit for non-dividend paying firms only. The findings of this study also exhibit some support for the arguments of Opler et al. (1999) who posited that even with poor investment opportunities, firms with excess cash will engage in higher amounts of capital expenditure.

The finding that the current cash levels are associated with higher levels of investment within the following year is also consistent with the expectations. This study reported an increase of approximately 18 percent in investment levels following a 1 percent increase in cash holdings. Almeida and Campello (2007) argued that cash holdings are a useful means of collateral if a firm is planning to embark on future investments. This is supported by Opler et al. (1999) who refuted the argument that cash holdings affect capital expenditure in the long-term, and found that excess cash is used to increase capital expenditures within the ensuing one year. Their results also indicated that greater cash holdings are associated with higher levels of investment for constrained firms with high hedging needs. Hence, the findings of this study are expected, given the high costs of debt financing within the Caribbean and the constrained capital markets.

As was conceptualized, internal funds were found to be a significant predictor of investment in the current year, and the ensuing twelve months. Internal funds demonstrate a strong collateral position for the firm, thus enabling them to engage in more positive NPV projects. The findings suggest that companies maybe using cash holdings as an initial means of investment funding before using other sources of internal funds. This is evidenced by the increasing levels of internal funds in the current period, which are accompanied by decreasing levels of cash holdings. This suggests that firms will increase investment levels once operating cash flows are positive (hence an increase in internal funds), but not to the extent that they exhaust current operating cash flows.

The positive effect of UDC on investment levels in the ensuing 12 months supports the conceptual framework, and shows support for the study of Marchica and Mura (2010) which found that firms with spare leverage capacity invested more. They found that firms were able to invest 37 percent higher following a period of conservative leverage policy. This study finds that spare leverage capacity leads to a 17 percent change in investment levels in the following year, which, while lower than the percentage reported by Marchica and Mura (2010), is still sizeable in economic terms. These findings support the conservative leverage behavior reported by Almeida et al. (2011) and Denis and McKeon (2012). It is evident that although Caribbean firms are constrained by high costs of external financing, UDC still affords companies the opportunity to increase their value by engaging in more potential value increasing projects. Shareholders maybe averse to using excess amounts of internal funds in unproven capital expenditure. Hence debt capacity can be used to gain favor in the eyes of creditors and access much needed bank credit.

Financial flexibility and dividend payout

The payout levels of the firm were found to be impacted by financial flexibility. Higher levels of liquidity were associated with significantly higher levels of dividend payouts (β=15.4894, $p<.05$), and higher levels of UDC were linked to significantly higher levels of dividend payouts (β=8.0853, $p<.05$). Higher levels of internal funds were also related to higher levels of dividend payouts (β=2.2444 $p<.05$). These findings suggest that boards of directors are generally more comfortable paying dividends once the firm has some adequate measure of internal funds, liquidity or UDC to maintain financial flexibility.

The findings on the value of internal funds in determining the dividend payout decision demonstrate some support for the arguments of Afza and Mirza (2011) and Patra et al. (2012) who found that operating cash flows and leverage were significant determinants of the firm's dividend policy. In line with the logic proposed in the conceptual framework, the findings of this study suggest that spare leverage capacity means that the firm is not restricted by demands of the lenders, and hence is in a position to pay high dividends.

The value of liquidity in the current dividend payout decision has implications for the cash management of the firm. The findings imply that where liquidity is high, management may

pay higher dividends in order to return cash to shareholders, while not jeopardizing the financial flexibility of the firm. This logic concurs with the reasoning of Amidu and Abor (2006). These findings however oppose Afza and Mirza (2011) who proposed that higher levels of cash signaled an attitude of savings toward profitable investments, leading to lower dividend payouts. The increase in dividends supported by higher levels of liquidity is however reasonable given the signaling behavior of dividends. In addition to returning cash to shareholders, management of these firms may use dividends as a signal to shareholders that the company is doing well and has a positive outlook for the future.

The testing of the long-term impact (i.e. the ensuing 12 months) of financial flexibility on payout policy found that the relationship between internal funds and payout remained, albeit a stronger relationship (β=3.5254, $p<.05$). The relationship between UDC and payout in the following 12 months however turned negative (β=-2.324, $p<.05$). Some may indeed argue that this relationship is spurious. However, when this result is considered in combination with the importance of UDC in the investment decision of these firms, this relationship has some logical implications for the financial management of firms within the Caribbean. It is clear from testing of the framework that UDC is extremely valuable for the firm in increasing their investment propensity, especially in the following 12-month period. Therefore, if managers indeed use current UDC to fund future capital projects, they may then be reluctant to engage in a long-run increase in dividends, as these dividend payouts may coincide with large amounts of capital expenditure. Shareholders are also more likely to accept lower dividend payments where management has an approved plan to engage in positive NPV projects.

It is within reason that the internal funds of a company remain a significant predictor of the dividend payout decision in the ensuing 12 months. Traditional finance theory and accounting practice dictate that dividends are paid only if the firm has built up enough internal equity from operating cash flows over the years to fund the payment. Hence, even the long-term dividend payout is heavily dependent on the level of internal funds.

The moderating impact of PP conflict: investment propensity

Testing on the moderating impact of PP conflict on the relationship between financial flexibility and investment propensity indicated that PP conflict moderated the relationship between unused debt capacity and investment through board size (See Figure II). Higher UDC led to lower investment under high board size. However, as board size decreased, the negative relationship between UDC and investment levels became weaker. Since the direct correlation statistics showed that high ownership concentration is associated with significantly higher levels of investment, this finding implies that companies are better able to maximize the investment benefits of spare leverage capacity where there is block holder ownership structure. These findings oppose the conceptual model of this study, which argued that the existence of PP conflict frustrated the benefits of financial flexibility to the firm.

This result may speak to the investment appetite of firms with block holder interests. The increased benefit of financial flexibility to the investment levels of the firm maybe a result of block holder desire to increase the value of their investment in the firm. This may especially be the case if the dominant owner's stake in the firm represents a material percentage of his portfolio. It is also possible that in the Caribbean, block holder owners maybe bringing a wealth of business acumen and aptitude to the firm, which enables the firm to get more from their investing capacity. This finding disputes the work of Ozkan and Ozkan (2004), who argued that the identification of block holder ownership does not affect the decision-making of the enterprise. However, these results are not surprising given the findings of Jensen and Meckling (1979), who maintained that high ownership concentration leads to greater monitoring of the firm. Shleifer and Vishny (1986) argued that this increased monitoring should lead to better decision-making. Following the reasoning of Filatotchev, Wright, Uhlenbruck, Tihanyi and

Hoskisson (2003), the increased goal congruence in block holder denominated firms may augur well for the investment ability of Caribbean firms.

The moderating impact of PP conflict: Dividend payout.

Testing revealed that PP conflict moderated the relationship between financial flexibility and payout. Board dependence was found to moderate the relationship between liquidity and dividend payout, and between unused debt capacity and dividend payout. Analysis of the interaction slopes revealed that when board dependence was high, higher liquidity led to lower payout (See Figure X). However, when board dependence was low, high liquidity resulted in higher payout. In the case of UDC, the positive effect of UDC on payout was significantly stronger under low board dependence as opposed to high board dependence (See Figure 9).

These results agree with those of Maury and Pajuste (2002) who defended their findings by attributing lower dividends to the extraction of private benefits. However, Pindado et al. (2012) revealed opposite results and argued that higher dividends were paid as a dominance tool to satisfy minority shareholders. This study's findings hint at a block holder emphasis on retaining adequate levels of liquidity and UDC in the firm. Given the environmental backdrop of these firms, and the increased levels of investment found in firms with concentrated ownership, lower dividends may be aimed at maintaining resources to fund opportunities in the operating environment as they arise.

Ownership concentration demonstrated the ability to moderate the relationship between all the indicators of financial flexibility and payout (See Figures VI to VIII). Analysis of the interaction slopes for the moderating effect of ownership concentration on the relationship between financial flexibility and its outcomes revealed higher liquidity, UDC and internal funds were associated with lower levels of payout, under high degrees of ownership concentration. As ownership concentration decreased, the negative impact of liquidity, UDC and internal funds on levels of payout became less pronounced (or became weaker). These results were largely consistent with the results of the moderating impact of board size on the payout of the firm, since small board sizes are associated with high ownership concentration in the Caribbean. As board size increased, the impact of liquidity on payout increased (See Figure III). Similar results were found for both UDC and internal funds, with large board sizes increasing the effect of internal fund and UDC on the levels of dividends paid (See Figures IV and V). Since the dividend decision is made by the board, these results imply that block holders influence on the board is high, and this is likely through the appointment of a dependent board. These results also suggest that Caribbean block holder firms do not use spare resources as a basis to pay higher dividends to shareholders. Considering the signaling implications of dividends (John & Williams, 1985), it may be argued that lower dividends are a negative signal to shareholders about the firm's prospects. Hence, it is unlikely that block holder firms in this region use dividends as a corporate governance tool. Instead, this result gives credence to the possible defense that financial flexibility is a key driver of financial decision-making.

Figure 2: The Moderating Impact of Board Size on the relationship between UDC and Investment propensity

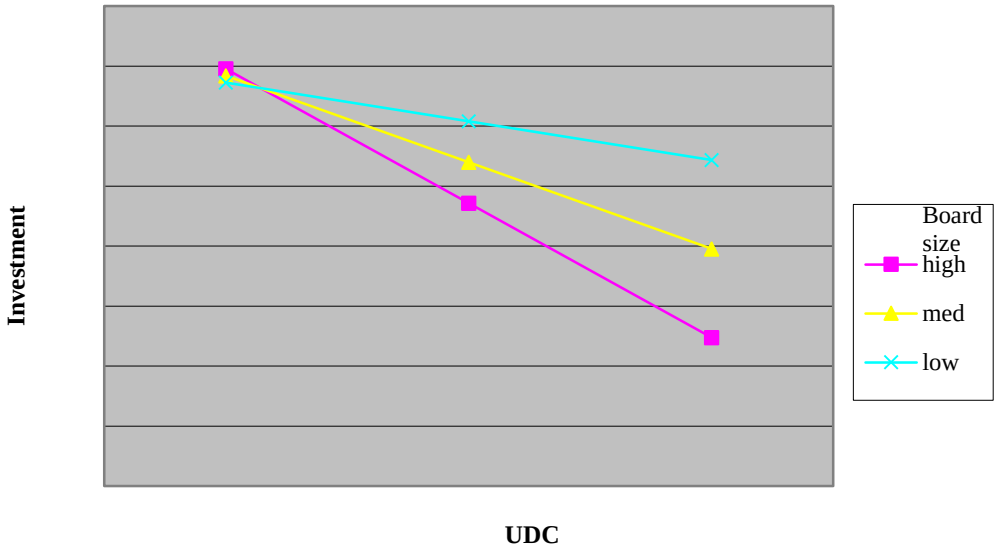


Figure 3: The moderating impact of board size on the relationship between liquidity and payout.

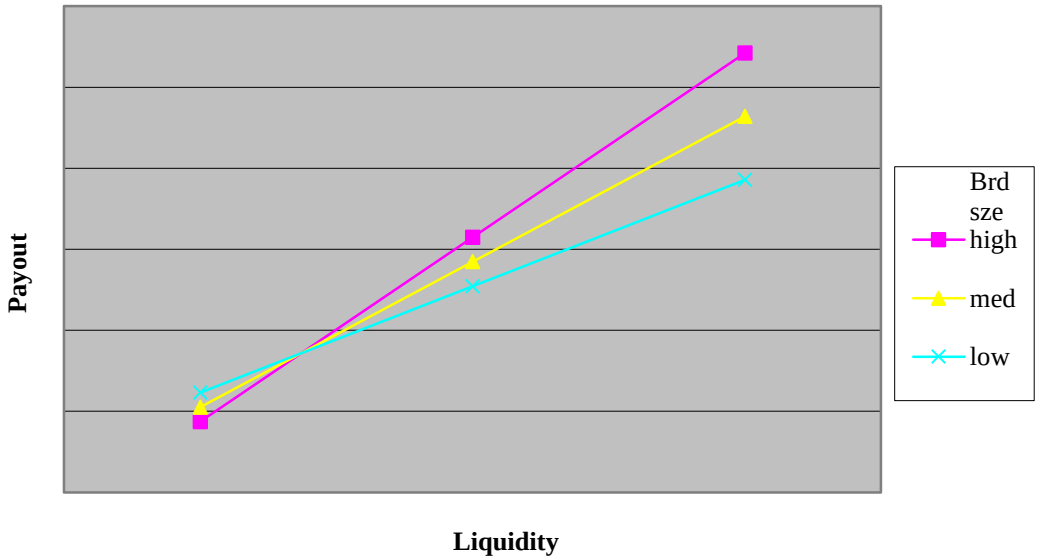


Figure 4: The moderating impact of board size on the relationship between UDC and payout.

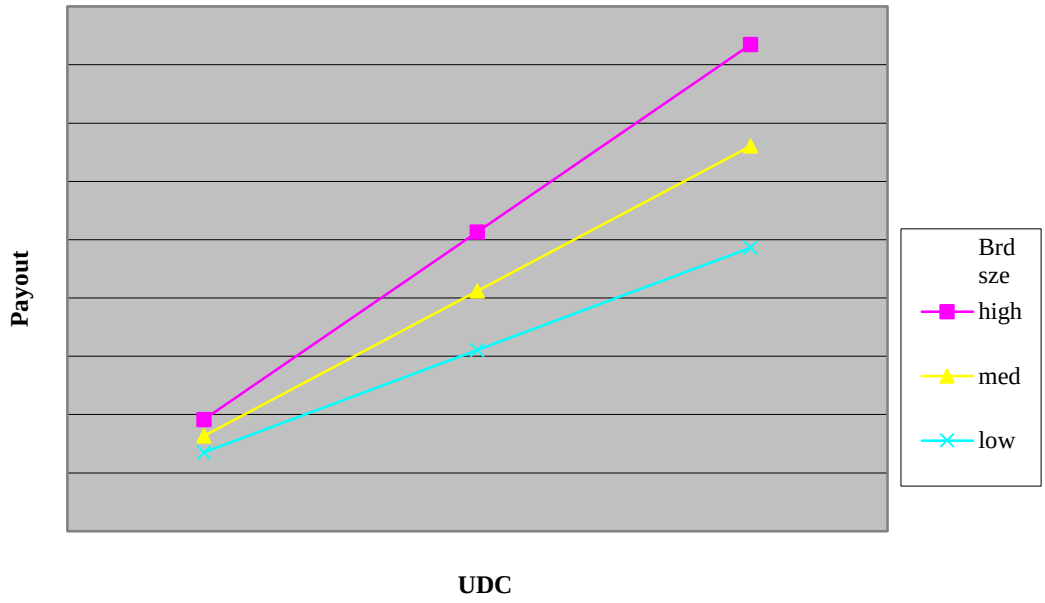


Figure 5: The moderating impact of board size on the relationship between internal funds and payout

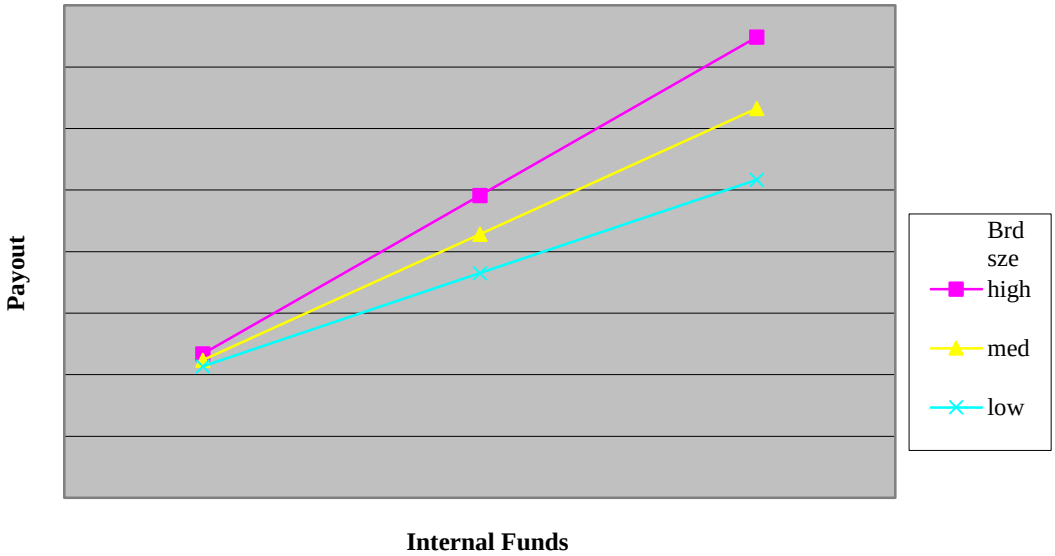


Figure 6: The moderating impact of ownership concentration on the relationship between liquidity and payout.

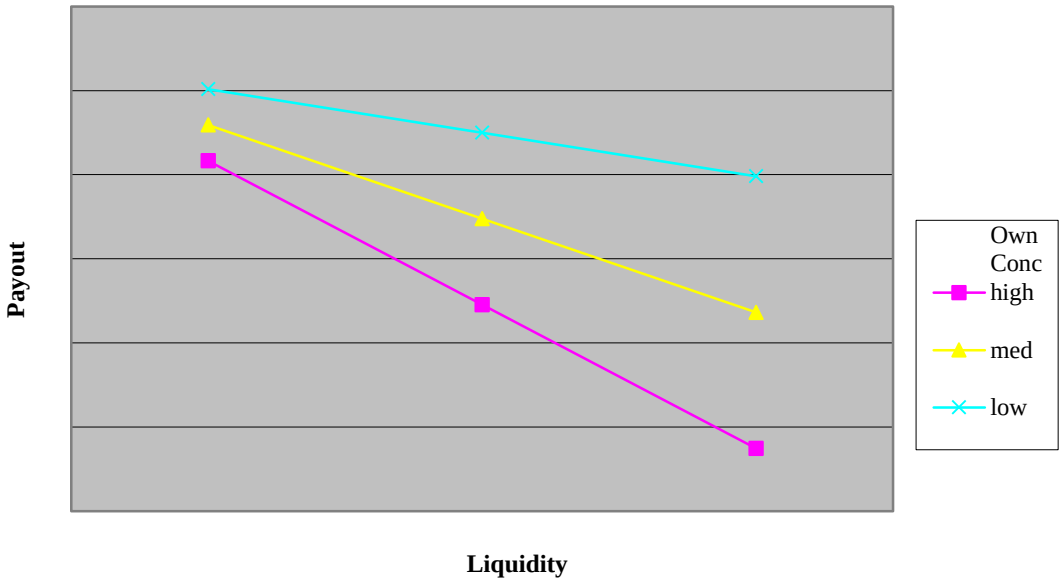


Figure 7: The moderating impact of ownership concentration on the relationship between internal funds and payout

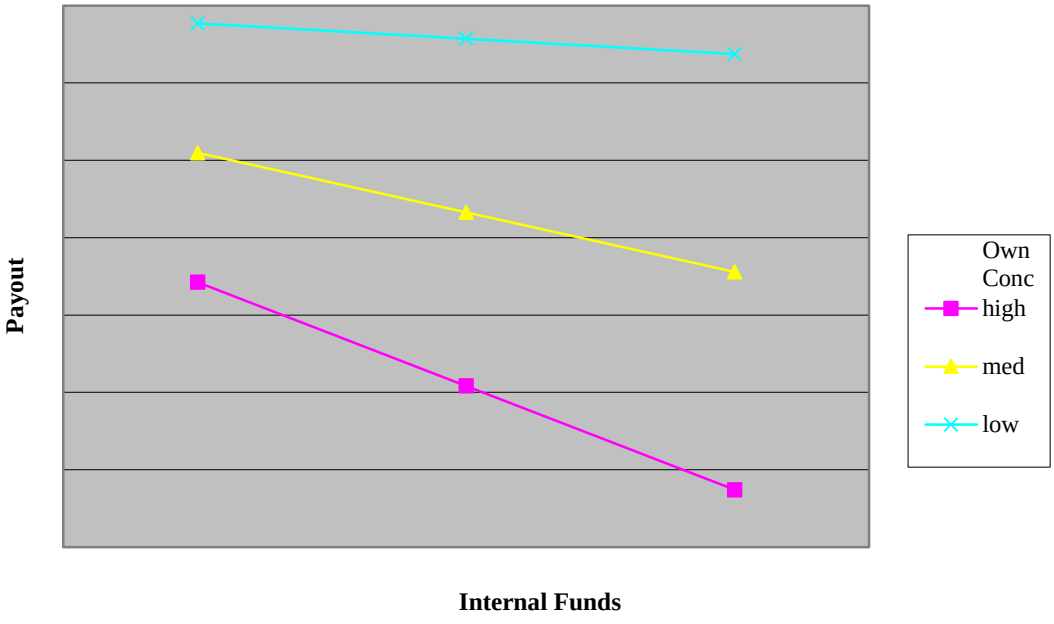


Figure 8: The moderating impact of ownership concentration on the relationship between udc and payout.

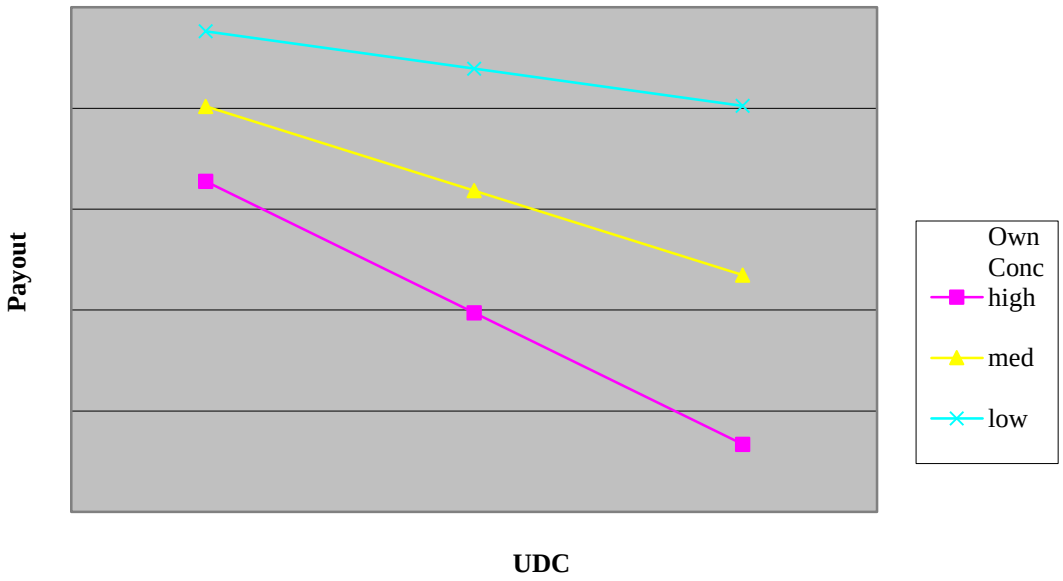


Figure 9: The moderating impact of board dependence on the relationship between UDC and payout.

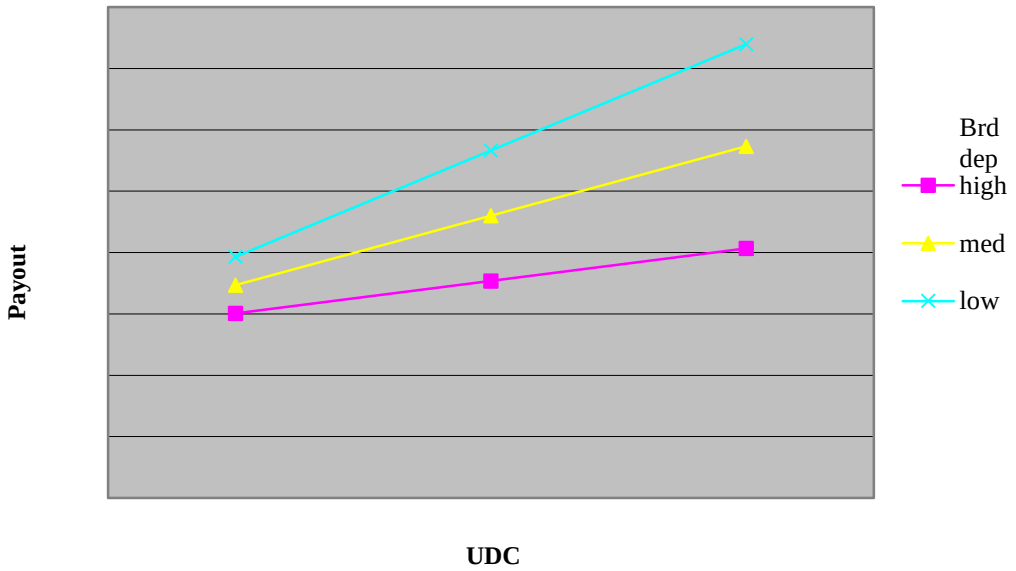
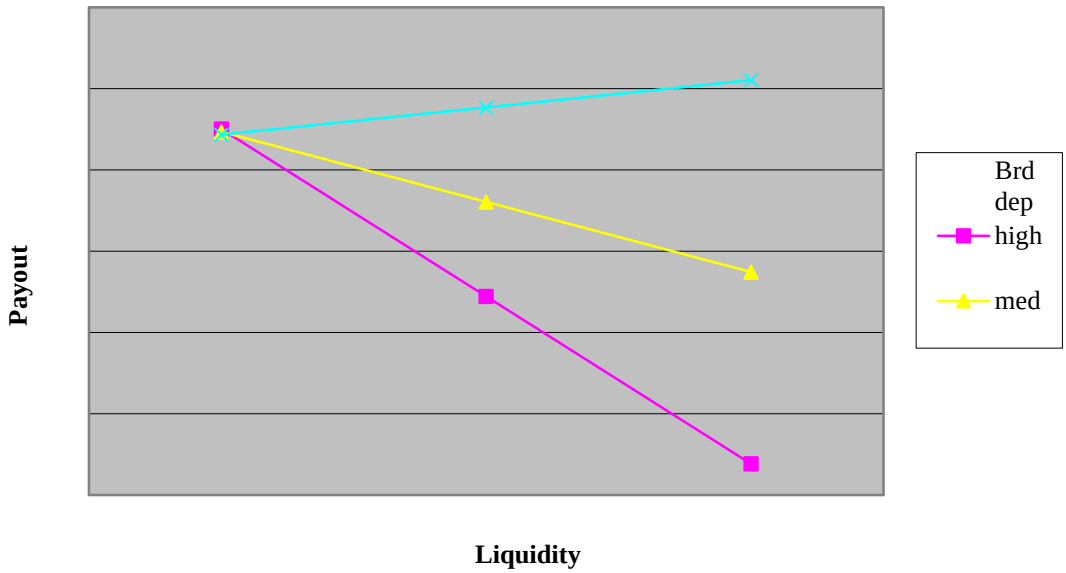


Figure 10: The moderating impact of board dependence on the relationship between liquidity and payout.



VI. Conclusion

This study sought to examine how the existence of block holder ownership structure affected the relationship between financial flexibility and its outcomes, namely investment propensity and dividend payout. This study reinforces the importance of financial flexibility in transition economies such as the Caribbean, where firms exist under heavily constrained capital markets.

Testing indicated that financial flexibility in the form of liquidity, internal funds and unused debt capacity were fundamental in ensuring higher levels of payouts and investment for the firm. This promoted liquidity and internal funds as critical factors to be considered in managing financial flexibility.

While the study proposed that there would be a negative moderating impact of the indicators of PP conflict on the benefits derived from the firm's financial flexibility, results showed that PP conflict negatively affected the level of dividends paid from the firm's stock of financial flexibility, and positively affected the level of investing. While previous research posited that lower payouts maybe a result of funneling, the overall results of this study insinuate that under dominant owners, there may be a stronger concern for keeping adequate stock of liquidity for future financial flexibility. This would be justified given the capital constraints that exist in the region. The positive moderating effect on the investment propensity of the firm gives added support for the lower levels of dividends. Since Block holder firms are more aggressive in in their investing, it is expected that future financial flexibility would be of greater importance.

Unlike suggestions of prior studies on PP conflict, this study does not infer that block holder influence is a costly characteristic of concentrated ownership. Instead, such ownership may indeed prove positive for firms in transition economies through improved monitoring of the

firm's management, greater goal congruence, and the concern for ensuring future viability and growth.

Contributions of the study

Research

While the findings of this study were broadly consistent with the findings of the work of Graham and Harvey (2001) they reinforced the need to consider liquidity and internal funds as key forms of financial flexibility (Bancel & Mitoo, 2011); a point that has been overlooked by many contemporary studies in financial flexibility.

Another key contribution of this study is the introduction of PP conflict into the study of financial flexibility. This represents an important advancement in the study of financial flexibility, since this research shows that PP conflict may at times have a positive moderating effect on the investment levels of the firm. Given the current emphasis on finance research in markets which feature concentrated ownership, such as Asia, PP conflict is of key interest to researchers. A review of the English language literature has revealed that little has been done which examines the impact of such agency conflict on the benefits of financial flexibility. Hence, this study examined the moderating impact of PP agency conflict on the relationship between financial flexibility and the decision-making of the firm.

Governance policy

This study has revealed some critical implications for the corporate governance of firms in emerging and developing economies. It informs the argument of convergence of worldwide corporate governance policies, which has been driven by the emergence of the global marketplace and internationalization of financial markets (Carati & Rad, 2000). The results yielded can indeed be used to inform policy-making, as governance mechanisms that are too restrictive of block holders may prove detrimental, by leading to a trade-off between allaying minority shareholder fears, and increased levels of wealth-maximizing projects.

This research highlights the distinctiveness of PP conflict. Many researchers have found that corporate governance problems maybe unique (Young et al., 2004) based on the exclusivity of the underlying cultural dimensions; for example, ownership structures (Denis and McConnell, 2003). Although cross boundary transactions and investment dictate a need for standards of governance, this review clearly shows that the mechanisms needed to attain these acceptable standards maybe different due to the different governance issues that exist across markets.

Finance practice

Finance practitioners need to be aware that while financial flexibility maybe touted as the way to ensure that businesses can respond to opportunities in their environment, the way to attain this flexibility may differ depending on the environment of the firm. In considering the firm's environment, consideration should be given not only to the macroeconomic factors, but also to the impact of ownership structure on the operations of the firm. An understanding of how shareholder dominance affects firm value, and minority shareholder perception should guide the financial decisions of the enterprise.

The impact of PP conflict on the firm's overall financial policies may at times be ignored. The importance of this cannot be overly emphasized since the advancement of capital markets in emerging and developing economies, depends on the ability of corporate governance mechanisms to create confidence amongst potential investors.

Areas for future research

Given the findings of the study, future qualitative testing should be conducted on the Caribbean to yield a comprehensive understanding of the impact of high ownership concentration on corporate finance practice in this region. This may be done via large survey studies of CFO's and finance managers in the Caribbean. Given the major contribution of the survey study conducted by Graham and Harvey (2001), using a similar methodology should yield rich results that reinforce the findings of this secondary data analysis, or reveal areas for further research.

Furthermore, the quantitative testing should be expanded to other transition economies. This would allow for other variables such as cultural differences and legal environments to be considered in the assessment of the impact of high ownership concentration on finance practice in transition economies. The moderating model should also be extended to developed markets since this has not previously been tested.

Challenges and limitations of the study

This study, though making a material contribution to the study of corporate finance practice, was not without its challenges. In the initial stages of the study, accessing the necessary annual reports was problematic. Given the relatively short tenure of stock exchanges existing in the region, there was no database which housed the historical financial statements of all the publicly listed companies in the Caribbean. The Barbados Stock Exchange maintains such a database for the period 2000 to 2014. However, such records were not maintained in the other Caribbean territories. Due to this challenge, the researcher relied on direct communication with the companies to gather the necessary data used in testing. This limitation impacted the monetary resources and the time schedule of the study. There was also a negative impact on the sample size, which would have increased the generalizability of the results of the secondary data analysis.

The study was also limited by the inability to access the corporate records of the companies. Although financial statements note the identity of the substantial owners of a company, in some cases, the ultimate ownership may lay in the hands of a single owner whose interests have been placed in trusts and other legal vehicles. Hence, ownership percentages may at times be understated.

References

Afza, T., & Mirza, H. (2011). Institutional shareholdings and corporate dividend policy in Pakistan. *African Journal of Business Management*, 5 (22), 8941-8951.

Aiken, L., & West, S. (1991). *Multiple regression: Testing and interpreting interactions.* London: Sage.

Al-Najjar, B. (2013). The financial determinants of corporate cash holdings: evidence from some emerging markets. *International Business Review,* 22(1), 77-88.

Almeida, H. & Campello, M. (2007). Financial constraints, asset tangibility, and corporate investment. *Review of Financial Studies*, 20 (5), 1429-1460.

Almeida, H., Campello, M., & Weisbach, M. (2011). Corporate financial and investment policies when future financing is not frictionless. *Journal of Corporate Finance,* 17 (3), 675-693.

Amidu, M., & Abor, J. (2006). Determinants of dividend payout ratios in Ghana. *Journal of Risk Finance* 7 (2), 136-145.

Arellano, M., & Bond, S. (1991) Some tests of specification for panel data: monte carlo evidence and an application to employment equations. *The Review of Economic Studies* 58 (2), 277-297.

Arslan-Ayaydin, Ö., Florackis, C., & Ozkan, A. (2014). Financial flexibility, corporate investment and performance: evidence from financial crises. *Review of Quantitative Finance and Accounting* 42 (2), 211-250.

Bancel, F., & Mittoo, U. (2011). Financial flexibility and the impact of the global financial crisis: evidence from France. *International Journal of Managerial Finance* 7 (2), 179-216.

Baysinger, B., & Butler, H. (1985). Corporate Governance and the Board of Directors: Performance Effects of Changes in Board Composition. *Journal of Law, Economics, & Organization* 1 (1), 101-124.

Bouchani, Z., & Ghanbari, M. (2015). The relation between financial flexibility and financial performance with the ratio of book value to market value in Tehran listed firms.

Bradley, M., Capozza, D., & Seguin, P. (1998). Dividend policy and cash‐flow uncertainty. *Real Estate Economics* 26 (4), 555-580.

Byoun, S. (2008). How and when do firms adjust their capital structures toward targets? *The Journal of Finance* 63 (6), 3069-3096.

Carati, G., & Rad, A. (2000). Convergence Of corporate governance systems. *Managerial Finance* 26 (10), 66-73.

Chirinko, R., & Schaller. H. (1995). Why does liquidity matter in investment equations? *Journal of Money, Credit and Banking 27*, 527-548.

Chong, A. & Lopez-de-Silanes, F. eds. (2007). *Investor protection and corporate governance: firm-level evidence across Latin America*. Palo Alto, CA: Stanford University Press.

Danielson, M., & Scot, J. (2006). The capital budgeting decisions of small businesses. *Journal of Applied Finance* 16 (2), 45.

Darling, P. (1957). The influence of expectations and liquidity on dividend policy. *The Journal of Political Economy 65 (3)*, 209-224.

Dawson, J. (2014). Moderation in management research: what, why, when, and how. *Journal of Business and Psychology* 29 (1), 1-19.

DeAngelo, H., & DeAngelo, L. (2007). Capital structure, payout policy, and financial flexibility. Working paper, Marshall School of Business, California.

DeAngelo, H., DeAngelo, L., & Stulz, R. M. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial economics*, *81*(2), 227-254.

Denis, D., & McKeon, S. (2012). Debt financing and financial flexibility evidence from proactive leverage increases. *Review of Financial Studies* 25 (6), 1897-1929.
Denis, D., & Sibilkov, V. (2010). Financial constraints, investment, and the value of cash holdings. *Review of Financial Studies* 23 (1), 247-269.
Denis, D., & McConnell, J. (2003). International corporate governance. *Journal of Financial and Quantitative Analysis* 38 (1), 1-36.
Faccio, M., Lang, L., & Young, L. (2010). Pyramiding vs leverage in corporate groups: international evidence. *Journal of International Business Studies* 41 (1), 88-104.
Fazzari, S., Hubbard, R. & Petersen, B. (1988). *Financing constraints and corporate investment*. Cambridge, MA: National Bureau of Economic Research.
Fama, E., & Jensen, M. (1983). Separation of ownership and control. *Journal of Law and Economics* 26 (2), 301-325.
Filatotchev, I., Wright, M., Uhlenbruck, K., Tihanyi, L., & Hoskisson, R. (2003). Governance, Organizational Capabilities, and Restructuring in Transition Economies. *Journal of World Business* 38 (4), 331-347.
Flannery, M., & Hankins, K. (2013). Estimating dynamic panel models in corporate finance. *Journal of Corporate Finance* 19, 1-19.
Graham, J., & Harvey, C. (2001). The theory and practice of corporate finance: evidence from the field. *Journal of Financial Economics* 60 (2), 187-243.
Harford, J. (1999). Corporate cash reserves and acquisitions. *The Journal of Finance* 54 (6), 1969-1997.
Hoshi, T., Kashyap, A., & Scharfstein, D. (1991). Corporate structure, liquidity, and investment: evidence from Japanese industrial groups. *The Quarterly Journal of Economics* 106 (1), 33-60.
Hu, H., Tam, O., & Tan, M. (2010). Internal governance mechanisms and firm performance in China. *Asia Pacific Journal of Management* 27 (4), 727-749.
James, E. (1996). Providing better protection and promoting growth. *International Securities Review.* 39 (3), 3-20.
Jensen, M. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review* 76 (2), 323-329.
Jensen, M., & Meckling, W. (1979). Theory of the firm: managerial behavior, agency costs, and ownership structure. *Rochester Studies in Economics and Policy Issues* 1, 163-231.
John, K., & Williams, J. (1985). Dividends, dilution, and taxes: a signalling equilibrium." *The Journal of Finance* 40 (4), 1053-1070.
Kalcheva, I., & Lins, K. (2007). International evidence on cash holdings and expected managerial agency problems. *Review of Financial Studies* 20 (4), 1087-1112.
Keynes, J. (1973) 1936. The general theory of employment, interest and money.
Khurana, I., Martin, X., & Pereira, R. (2006). Financial development and the cash flow sensitivity of cash. *Journal of Financial and Quantitative Analysis* 41 (4), 787-808.
La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1997). Legal determinants of external finance. Journal of Finance 52 (3), 1131-1150.
Lemmon, M., & Roberts, M. (2010). The response of corporate financing and investment to changes in the supply of credit. *Journal of Financial and Quantitative Analysis* 45 (3), 555-587.
Lewellyn, K., & Muller-Kahle, M. (2012). CEO power and risk taking: evidence from the subprime lending industry. *Corporate Governance: An International Review* 20 (3), 289-307.
Li, J. (1994). Ownership structure and board composition: a multi-country test of agency theory predictions. *Managerial and Decision Economics* 15 (4), 359-368.
Lie, E. (2005). Financial flexibility, performance, and the corporate payout choice. *The Journal*

of Business 78 (6), 2179-2202.
Lins, K. (2003). Equity ownership and firm value in emerging markets. *Journal of Financial and Quantitative Analysis* 38 (1), 159-184.
Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *The American Economic Review*, *46*(2), 97-113.
Maury, C., & Pajuste, A. (2002). Controlling shareholders, agency problems, and dividend policy in Finland. *LTA* 1 (2), 15-45.
Marchica, M., & Mura, R. (2010). Financial flexibility, investment ability, and firm value: evidence from firms with spare debt capacity. *Financial Management* 39 (4), 1339-1365.
Maury, B., & Pajuste, A. (2005). Multiple large shareholders and firm value. *Journal of Banking & Finance* 29 (7), 1813-1834.
McNulty, T., Florackis, C., & Ormrod, P. (2013). Boards of directors and financial risk during the credit crisis. *Corporate Governance: An International Review* 21 (1), 58-78.
Miller, M., & Rock, K. (1985). Dividend policy under asymmetric information. *The Journal of Finance* 40 (4), 1031-1051.
Modigliani, F., & Miller, M. (1963). Corporate income taxes and the cost of capital: a correction. *The American Economic Review 53 (3),* 433-443.
Morck, R., Wolfenzon, D., & Yeung, B. (2005). Corporate governance. economic entrenchment, and growth. *Journal of Economic Literature* 43 (3), 655-720.
Muller-Kahle, M., & Lewellyn, K. (2011). Did board configuration matter? the case of us subprime lenders. *Corporate Governance: An International Review* 19 (5), 405-417.
Myers, S. (1977). Determinants of corporate borrowing. *Journal of Financial Economics* 5 (2), 147-175.
Oded, J. (2008). Payout policy, financial flexibility, and agency costs of free cash flow. Working paper, Boston University, Boston.
Ooi, J. (2001). "Dividend payout characteristics of uk property companies." *Journal of Real Estate Portfolio Management* 7 (2), 133-142.
Opler, T., Pinkowitz, L. & Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of Financial Economics* 52 (1), 3-46.
Ozkan, A., & Ozkan, N. (2004). Corporate cash holdings: an empirical investigation of UK companies. *Journal of Banking and Finance* 28 (9), 2103-2134.
Patra, T., Poshakwale, S., & Ow-Yong, K.. (2012). Determinants of corporate dividend policy in Greece. *Applied Financial Economics* 22 (13), 1079-1087.
Pindado, J., Requejo, I., & Torre, C. (2012). Do family firms use dividend policy as a governance mechanism? evidence from the Euro zone. *Corporate Governance: An International Review* 20 (5), 413-431.
Robinson, C. (2006). Dividend policy among publicly-listed firms in barbados. *Journal of Eastern Caribbean Studies* 31 (1), 1-32.
Saunders, M., Lewis. P., & Thornhill, A. (2009). *Research methods for business students*. London: Prentice Hall.
Shleifer, A., & Vishny, R. (1986). Large shareholders and corporate control. *The Journal of Political Economy* 94 (3), 461-488.
Su, Y., Xu, D., & Phan, P. (2008). Principal–principal conflict in the governance of the chinese public corporation. *Management and Organization Review* 4 (1), 17-38.
Varouj, A.,Geb,Y., & Qiu, J. (2005). The impact of leverage on firm investment: Canadian evidence. *Journal of Corporate Finance* 11 (1-2), 277-291.

Young, M., Ahlstrom, D., & Bruton, G. (2004). The globalization of corporate governance in East Asia: the 'transnational' solution." *Management International Review* 44 (2), 31-50.
Young, M., Peng, M., Ahlstrom, D., Bruton, G., & Jiang. Y. (2008). Corporate governance in emerging economies: a review of the principal–principal perspective. *Journal of Management Studies* 45 (1), 196-220.

Firm Characteristics Over Time by Dividend Payment Pattern and Firm Size

John Consler, Greg M. Lepak, and Susan F. Havranek

Abstract

This paper examines relationships between four dividend payment patterns and firm size using seven relevant financial variables from prior studies. Growth rates on the means of these variables are obtained from CRSP using large sample (quarterly) data in the time span 2000 to 2012.

The four dividend payment pattern groups represent traditional dividend theory, dividend irrelevance theory, dividend initiators, and a residual/catering theory approach. Results indicate that small firms following a traditional or a residual/catering payment pattern have been most attractive for investment purposes. Surprisingly, both small and large dividend initiators are not being rewarded by the market. Recommendations for future research are discussed.

I. Introduction

The purpose of this descriptive study is to classify cash dividend paying firms from 2000 to 2012 into one of four groups, based upon payment patterns. The four groups are divided into small and large size firms. Seven key variables are collected and growth rates among five points in time are calculated for each variable. Intensive data analyses are used to investigate mean percentage change, the average of these growth rates, on those variables between dividend paying groups.

Quarterly data are used for dividends per share, beta, market/book ratio, liquidity current ratio, debt ratio, net income, and common shares outstanding. These variables have been chosen based upon results from four prior studies (Fama and Fama, 2001; Consler and Lepak, 2007; Havranek et al., 2009; and Consler et al., 2013).

Group 1 firms pay dividends sometime during the first year of study and each subsequent year throughout the study period. This group represents firms that follow traditional dividend theory, described by Brigham and Houston (2012), a popular finance textbook, as proposed by Gordon and Lintner. Investors prefer to receive current income in the form of predictable, stable dividends rather than the uncertain potential future income through capital gains on the stock. Such a constant dividend payment pattern will raise market value of the firm and decrease cost of capital. Dividends do matter.

Group 2 firms pay dividends during the first year of study and stop before the final study year. By definition, there are no observations in the final study year. For some reason these firms decide not to continue cash dividends or are unable to continue. They may not feel dividends are important. Brigham and Houston (2012) report on dividend irrelevance theory as

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espoused by Miller and Modigliani, the direct opposite of the traditional viewpoint. Dividends do not matter. Market value of stock and cost of capital are unrelated to dividend policy. There is no optimum dividend policy. Instead of paying cash dividends, firms should re-invest net income into the company, causing stock capital gains growth. Investors decide when to sell their stock to capture income. There are tax advantages to this approach, as it is best to delay taxes in an inflationary environment.

These two classic dividend theories are at opposite ends of a spectrum. In the real world, investor sentiment moves back and forth between the two extreme positions. During the late 1990's stock market bubble, dividends were irrelevant to a great extent. In 2003, a reduction in taxes on dividends combined with a weaker stock market, made dividends more important to investors.

Group 3 firms do not pay dividends in year one, however they initiated dividends during a subsequent time period and continued with at least one payment per year. By definition, there are no observations in the initial study year. After dividend initiation, payment pattern is the same as Group 1 firms. These Group 3 firms appear to be following traditional dividend theory. Under the concept of the information content (signaling) theory, investors regard dividend changes as signals of management's earnings forecasts (Brigham and Houston, 2012). Dividend initiation may indicate good future earnings and more certain future dividends. Investors may react positively to this situation.

Group 4 includes all other dividend paying firms in the study. For example, firms that initiated a dividend during the study period (could be in first year or not) and missed at least one year after initiation. This payment approach seems to be some type of residual or perhaps catering theory.

Residual theory is favored by academics. Brigham and Houston (2012) explain. Under pecking order theory, internal equity from net income should be used for capital requirements before selling more expensive new common stock. Under residual theory, net income is subject to two constraints: the optimal capital structure and the optimal capital budget. Whatever income remains (residual) is left over for common stock dividends. Because both net income and capital budgeting needs will vary from year to year, the residual will also vary. Traditional theory argues that investors will not favor this uncertain dividend payment pattern. However, the residual approach would maximize the efficient use of net income, perhaps resulting in a higher stock price in the long run.

Catering theory is a demand driven approach to dividend payments. Investors' preference for dividends is believed to vary over time, and firms will adapt their dividend policy to cater to the current investor desires (Brigham and Houston, 2012).

With four groups established for use in this study, firm size and dividend pattern relationships to growth rates of seven key firm characteristics are to be investigated.

II. Literature Review

Fama and French (2001) provide the best study of firm characteristics relevant to dividends. These characteristics have changed over time (1978 to 1999), resulting in more small firms with low profitability and strong growth opportunities which are not likely to pay dividends. They also find, regardless of characteristics, firms have become less likely to pay dividends. Relevant variables for dividends proved to be profitability, investment opportunities, size, market value to book value, and share repurchase. This helps to determine which variables should be included in the current study.

Baker et al. (2001) find based on managers' responses the most important causes of dividend decisions are the pattern of past dividends, stability of earnings, and the level of current and expected future earnings. These factors are relevant for firms listed on both NASDAQ and the New York Stock Exchange. They also find great differences between financial versus non-financial firms. This study is followed by work on dividend stability by Consler et al. (2013) which placed dividend paying firms into three different payment pattern groups. The current study divides the firms into four groups.

Baker and Wurgler (2004) propose dividend decisions are driven by prevailing investor demand. Investor demand for dividends changes over time and firms react. They find non-payers tend to initiate dividends when demand is high. Payers tend to omit dividends when demand is low. Demand is based upon the relative stock price on dividend payers. Both past capital gains and future returns are part of the dividend model used. This is one of the reasons why the study here is limited to a period of time (12 years), when it is believed dividends vary in importance due to variable stock market conditions and tax law changes in 2003.

Group 4 in the current study is meant to include firms attracted to this catering theory pattern of dividend payments.

DeAngelo et al. (2004) build upon the work of Fama and French (2001). They find a concentration of dividends has occurred. Aggregate real dividends from industrial firms increased over the past 20 years, even though the number of dividend payers has decreased by over 50%. Increased dividends from top payers overwhelm the slight dividend reduction from the loss of many small payers. The largest aggregate dividend payers in 2000 account for over 50% of all dividends paid by industrial firms. When looking at a sample for future work, it had best include these large, dominant, dividend payers to be relevant.

Consler and Lepak (2007) build upon Fama and French's (2001) earlier work. Different characteristics such as price, size, debt level, shares outstanding, and profits are found to vary by risk and dividend level for firms paying dividends. Appropriate variables are shown to be key characteristics necessary for use in this current study.

Havranek et al. (2009) demonstrate market/book value, size of assets, number of shares outstanding and debt ratio are all significant variables related to dividends per share in both periods of the study. Net profit is only significant after 2000. These results helped determine the relevant variables for the current work.

The current study differentiates between small and large firms. Early studies use different size variables. Ben-Zion and Shalit (1975) use sales for the size variable. Gambola and Liu (1993) use total market value as do Mitra and Rashid (1997).

More recently Folkinshteyn and Meric (2014) used total assets as the size variable in their work. The current study follows their practice of dividing the sample into two groups, small versus large. Both studies investigate if changes in variables were different between small and large firms. They use a short study period of recession years 2007-2009, while the period for the current work is 2000-2012.

Folkinshteyn and Meric (2014) find firms with higher debt ratios lost more value in the crash compared with those with low debt ratios. The current study will focus attention on firms with low liquidity ratios and high debt ratios looking for similar results.

Payne (2009) establishes a unique financial profile for dividend initiating firms during the most recent recession. A surprise was the ratio of market value to book value was not a characteristic of dividend initiating firms. In the current study will this group be rewarded by a higher growth rate in this ratio or not as Payne finds? The authors will investigate this relationship.

The current study will include relevant variables from past works and look for established relationships among these variables with small and large dividend paying firms over a 12-year time period. The time period includes the recent recession and recovery. Four groups representing different dividend payment patterns are developed to continue refinement of prior studies.

III. Data for Study

Firms that paid cash dividends, excluding liquidations, acquisitions and reorganizations, during the period of 1/1/2000 and 12/31/2012 were identified in CRSP. Firms with SIC codes for trusts (6726, 6798) were deleted from the sample. In addition, firms that identified as trusts or funds in the firm name or made monthly dividend payments were excluded from the sample. Trusts and funds were excluded because they use different methods of accounting and tend to use greater leverage than non-investment based entities. Firms with monthly payments were excluded due to the difficulty of matching the quarterly earnings with the dividend payments.

All fiscal year end and quarter end dates were retained in the sample. Time identifications are assigned based on the calendar quarter the fiscal quarter end falls in.

Distribution codes for cash dividends were retained from CRSP. Information about special and non-recurring dividend payments was retained. In cases where CRSP reported the dividend frequency as unknown or unspecified, the dividend frequency information reported by Compustat was used. If Compustat provided no additional information about the dividend frequency the dividend payments were treated as an ordinary quarterly dividend for the purpose of linking the dividend payments to the earnings quarter.

Firm's daily returns and daily NYSE equal-weighted market index returns from CRSP were used to calculate a quarterly beta over the earnings fiscal quarter. Monthly high and low stock prices, quarterly balance sheet and income statement values and outstanding share data were collected from Compustat. Missing data for high and low stock prices, outstanding shares, and balance sheet amounts were hand collected where possible; otherwise the observations were deleted.

IV. Analysis and Results

Quarterly data were obtained on important financial variables for a total sample of 2394 firms at all measurement occasions for which a dividend was paid for the first quarter of 2000 through the fourth quarter of 2012, a total of 52 time periods. This is an inherently unbalanced data set where the number of measurements and measurement occasions depend on the firm. The financial variables of interest in this study are dividends per share, beta, market/book ratio, liquidity current ratio, debt ratio, net income, common shares outstanding, and total assets (firm size variable).

For purposes of analysis, dividend paying firms are separated into four groups based upon cash dividend pattern. The entire study period was used to define groups with different payment patterns. It was deemed appropriate to use a fairly long time period for this purpose. Group 1 contains firms that consistently pay a dividend at least once a year throughout the study period. Group 2 comprises firms that start off by paying a dividend at least once a year, but stop paying before the final year of the study. Group 3 consists of firms did not pay dividends in the first year, initiated a dividend during a subsequent time period, and continued with at least one dividend payment per year. Group 4 includes all other dividend paying firms--those that appear to be following an intermittent payment pattern.

Since each financial variable varies over time, we decided to restrict our analysis to five cross-sectional time periods: first quarter of 2000 (951 firms; beginning time period), second quarter of 2004 (868 firms; about *33.33 percentile* time period), third quarter of 2006 (957 firms; about median time period), third quarter of 2008 (924 firms; about *66.66 percentile* time period), and fourth quarter of 2012 (1019 firms; ending time period). Information in those time periods may be useful for detecting temporal patterns when studying the relations among financial variables and dividend payment patterns. We also investigate the importance of firm size in our analyses. In each period, the four groups are divided into small and large firms using the median of total assets variable.

Tables 1 and 2 present the main results of the study. Each table has five time periods, seven variables, mean, standard error of the mean, sample size, and percentage period change in mean for four groups of different dividend patterns. Table 1 is small firms and Table 2 is large firms. The interpretation of results is organized by variable.

Total Assets

Group 2 has the highest mean % change regardless of firm size. This supports the dividend irrelevance theory. Large firms do have a higher mean (42.99%) than small firms (25.33%). Group 3 has the lowest % change regardless of firm size, small firms at 17.90%

versus large firms at 9.43%. Particularly, large firms did not grow much over the 5 time periods, when they initiate dividends. Growth of total assets is one possible measure of success. Clearly here, large firms are growing faster if they ignore dividends.

Table 1. Mean ± Standard Error of the Mean and (Percentage Period Change in Mean) of Financial Variables for Small Dividend Paying Firms by Dividend Group and Time Period

VARIABLE		2000Q1	2004Q2	2006Q3	2008Q3	2012Q4	Mean % Change*
TOTAL	GROUP 1	427.0 ± 22.4	538.1 ± 28.0	667.9 ± 36.2	850.1 ± 46.1	898.6 ± 50.2	
ASSETS		n=175	n=168	n=163	n=168	n=156	
(MILLIONS		(NA)	(26.00%)	(24.13%)	(27.27%)	(5.71%)	(20.78%)
DOLLARS)	GROUP 2	346.5 ± 18.2	456.9 ± 33.2	615.2 ± 51.9	673.7 ± 90.7		
		n=244	n=109	n=75	n=39		
		(NA)	(31.86%)	(34.63%)	(9.51%)		(25.33%)
	GROUP 3		463.9 ± 55.1	507.7 ± 40.3	687.6 ± 45.7	748.4 ± 36.4	
			n=57	n=99	n=145	n=278	
			(NA)	(9.43%)	(35.45%)	(8.83%)	(17.90%)
	GROUP 4	308.3 ± 37.5	386.2 ± 37.2	523.1 ± 37.4	655.5 ± 54.6	662.3 ± 74.9	
		n=56	n=100	n=141	n=110	n=75	
		(NA)	(25.25%)	(35.45%)	(25.31%)	(1.05%)	(21.76%)
	ALL	371.7 ± 13.4	473.0 ± 17.9	583.7 ± 20.4	737.9 ± 26.9	781.7 ± 27.6	
		n=475	n=434	n=478	n=462	n=509	
		(NA)	(27.25%)	(23.42%)	(26.41%)	(5.95%)	
DIVIDENDS	GROUP 1	.15 ± .01	.18 ± .02	.17 ± .02	.20 ± .03	.39 ± .08	
PER SHARE		n=175	n=168	n=163	n=168	n=156	
(DOLLARS)		(NA)	(16.29%)	(-6.23%)	(22.30%)	(88.86%)	(30.31%)
	GROUP 2	.13 ± .01	.21 ± .08	.13 ± .03	.10 ± .01		
		n=244	n=109	n=75	n=39		
		(NA)	(64.18%)	(-36.17%)	(-29.29%)		(-0.43%)
	GROUP 3		.22 ± .03	.23 ± .04	.22 ± .02	.43 ± .12	
			n=57	n=99	n=145	n=278	
			(NA)	(3.71%)	(-2.39%)	(92.61%)	(31.31%)
	GROUP 4	.33 ± .17	.13 ± .02	.20 ± .03	.25 ± .04	.75 ± .37	
		n=56	n=100	n=141	n=110	n=75	
		(NA)	(-58.78%)	(50.06%)	(22.98%)	(204.75%)	(54.75%)
	ALL	.16 ± .02	.18 ± .02	.18 ± .01	.21 ± .01	.46 ± .09	
		n=475	n=434	n=478	n=462	n=509	
		(NA)	(13.07%)	(1.66%)	(14.35%)	(119.68%)	
BETA	GROUP 1	.58 ± .05	.93 ± .05	1.14 ± .06	1.21 ± .05	1.19 ± .05	
		n=175	n=168	n=163	n=168	n=156	
		(NA)	(60.08%)	(22.72%)	(6.12%)	(-1.49%)	(21.86%)
	GROUP 2	.66 ± .05	.92 ± .07	1.06 ± .08	1.18 ± .13		
		n=244	n=109	n=75	n=39		
		(NA)	(38.13%)	(15.12%)	(11.79%)		(21.68%)
	GROUP 3		.86 ± .10	.94 ± .07	1.03 ± .07	1.02 ± .04	
			n=57	n=99	n=145	n=278	
			(NA)	(8.91%)	(9.86%)	(-0.76%)	(6.00%)
	GROUP 4	.30 ± .08	.84 ± .08	1.07 ± .07	1.03 ± .08	1.21 ± .10	
		n=56	n=100	n=141	n=110	n=75	
		(NA)	(183.87%)	(27.34%)	(-3.47%)	(16.75%)	(56.12%)
	ALL	.59 ± .03	.90 ± .03	1.06 ± .03	1.11 ± .04	1.10 ± .03	
		n=475	n=434	n=478	n=462	n=509	
		(NA)	(52.06%)	(18.73%)	(4.18%)	(-0.65%)	

MARKET/ BOOK RATIO	GROUP 1	1.33 ± .10	1.52 ± .09	1.65 ± .11	1.51 ± .12	1.38 ± .12	
		n=175	n=168	n=163	n=168	n=156	
		(NA)	(14.64%)	(8.45%)	(-8.54%)	(-8.69%)	(1.46%)
	GROUP 2	1.07 ± .08	1.22 ± .08	1.21 ± .09	.83 ± .14		
		n=244	n=109	n=75	n=39		
		(NA)	(14.04%)	(-0.25%)	(-31.39%)		(-5.87%)
	GROUP 3		2.39 ± .25	2.48 ± .25	1.81 ± .12	1.60 ± .09	
			n=57	n=99	n=145	n=278	
			(NA)	(3.78%)	(-27.18%)	(-11.74%)	(-11.72%)
	GROUP 4	.95 ± .12	1.30 ± .11	1.54 ± .17	1.17 ± .13	1.02 ± .08	
		n=56	n=100	n=141	n=110	n=75	
		(NA)	(37.24%)	(18.22%)	(-23.80%)	(-13.29%)	(4.59%)
	ALL	1.15 ± .06	1.51 ± .06	1.72 ± .08	1.47 ± .07	1.44 ± .06	
		n=475	n=434	n=478	n=462	n=509	
		(NA)	(31.31%)	(14.09%)	(-14.85%)	(-1.50%)	
LIQUIDITY CURRENT RATIO	GROUP 1	2.30 ± .10	2.50 ± .13	2.52 ± .18	2.64 ± .18	2.85 ± .19	
		n=175	n=168	n=163	n=168	n=156	
		(NA)	(8.30%)	(1.01%)	(4.85%)	(7.73%)	(5.47%)
	GROUP 2	2.47 ± .15	2.93 ± .26	2.81 ± .27	2.82 ± .38		
		n=244	n=109	n=75	n=39		
		(NA)	(18.57%)	(-4.13%)	(0.43%)		(4.96%)
	GROUP 3		3.46 ± .54	3.34 ± .40	3.20 ± .44	3.13 ± .26	
			n=57	n=99	n=145	n=278	
			(NA)	(-3.49%)	(-4.06%)	(-2.20%)	(-3.25%)
	GROUP 4	2.87 ± .29	3.04 ± .24	2.55 ± .16	2.98 ± .39	2.80 ± .21	
		n=56	n=100	n=141	n=110	n=75	
		(NA)	(5.90%)	(-16.14%)	(16.87%)	(-6.00%)	(0.16%)
	ALL	2.46 ± .09	2.86 ± .12	2.74 ± .12	2.91 ± .18	3.00 ± .15	
		n=475	n=434	n=478	n=462	n=509	
		(NA)	(16.26%)	(-3.96%)	(6.20%)	(2.83%)	
DEBT RATIO	GROUP 1	.48 ± .02	.45 ± .02	.46 ± .02	.47 ± .02	.46 ± .02	
		n=175	n=168	n=163	n=168	n=156	
		(NA)	(-5.54%)	(1.61%)	(2.25%)	(-2.56%)	(-1.06%)
	GROUP 2	.50 ± .01	.45 ± .02	.49 ± 02	.51 ± .03		
		n=244	n=109	n=75	n=39		
		(NA)	(-9.09%)	(7.80%)	(3.58%)		(0.76%)
	GROUP 3		.39 ± .04	.44 ± .03	.49 ± .03	.45 ± .02	
			n=57	n=99	n=145	n=278	
			(NA)	(14.33%)	(11.73%)	(-8.46%)	(5.86%)
	GROUP 4	.45 ± .03	.41 ± .02	.48 ± .02	.52 ±. 03	.44 ± .02	
		n=56	n=100	n=141	n=110	n=75	
		(NA)	(-8.63%)	(15.90%)	(9.32%)	(-14.69%)	(0.48%)
	ALL	.49 ± .01	.43 ± .01	.47 ± .01	.49 ± .01	.45 ± .01	
		n=475	n=434	n=478	n=462	n=509	
		(NA)	(-10.54%)	(7.14%)	(5.85%)	(-8.06%)	

NET INCOME (MILLIONS DOLLARS)	GROUP 1	8.27 ± .74	9.98 ± .99	12.03 ± 1.47	16.50 ± 1.63	17.22 ± 1.86	
		n=175	n=168	n=163	n=168	n=156	
		(NA)	(20.70%)	(20.45%)	(37.19%)	(4.36%)	(20.67%)
	GROUP 2	5.01 ± .82	5.86 ± .95	12.50 ± 3.53	4.71 ± 2.47		
		n=244	n=109	n=75	n=39		
		(NA)	(16.96%)	(113.23%)	(-62.32%)		(22.62%)
	GROUP 3		9.94 ± 1.97	15.69 ± 2.30	9.00 ± 3.76	14.32 ± 1.85	
			n=57	n=99	n=145	n=278	
			(NA)	(57.79%)	(-42.61%)	(59.09%)	(24.76%)
	GROUP 4	5.54 ± 2.20	8.60 ± 2.24	12.45 ± 1.76	4.63 ± 3.28	7.15 ± 1.59	
		n=56	n=100	n=141	n=110	n=75	
		(NA)	(55.08%)	(44.85%)	(-62.81%)	(54.50%)	(22.91%)
	ALL	6.28 ± .57	8.62 ± .74	12.98 ± 1.03	10.32 ± 1.56	14.15 ± 1.19	
		n=475	n=434	n=478	n=462	n=509	
		(NA)	(37.42%)	(50.57%)	(-20.48%)	(37.09%)	
COMMON SHARES OUTSTAND (MILLIONS SHARES)	GROUP 1	21.77 ± 1.59	26.41 ± 1.92	31.70 ± 2.25	35.43 ± 2.64	37.63 ± 3.36	
		n=175	n=168	n=163	n=168	n=156	
		(NA)	(21.30%)	(20.01%)	(11.77%)	(6.20%)	(14.82%)
	GROUP 2	16.10 ± .95	20.93 ± 1.62	28.06 ± 2.88	28.04 ± 4.09		
		n=244	n=109	n=75	n=39		
		(NA)	(30.05%)	(34.04%)	(-0.08%)		(21.34%)
	GROUP 3		27.60 ± 3.58	35.80 ± 4.14	40.78 ± 3.55	44.20 ± 2.68	
			n=57	n=99	n=145	n=278	
			(NA)	(29.73%)	(13.92%)	(8.38%)	(17.35%)
	GROUP 4	19.03 ± 3.47	21.34 ± 2.09	30.87 ± 2.47	34.06 ± 3.36	32.78 ± 3.44	
		n=56	n=100	n=141	n=110	n=75	
		(NA)	(12.14%)	(44.67%)	(10.33%)	(-3.76%)	(15.85%)
	ALL	18.53 ± .87	24.02 ± 1.09	31.73 ± 1.44	36.16 ± 1.71	40.50 ± 1.87	
		n=475	n=434	n=478	n=462	n=509	
		(NA)	(29.61%)	(32.09%)	(13.95%)	(12.01%)	

*Simple average of percentage period changes in each row.

Note: Percentage period change is calculated using actual mean versus table-rounded mean.

Table 2. Mean ± Standard Error of the Mean and (Percentage Period Change in Mean) of Financial Variables for Large Dividend Paying Firms by Dividend Group and Time Period

VARIABLE		2000Q1	2004Q2	2006Q3	2008Q3	2012Q4	Mean % Change*
TOTAL	GROUP 1	10241.3 ± 1037.9	15434.0 ± 1583.9	18561.2 ± 1941.0	22677.3 ± 2488.8	25247.8 ± 2674.4	
ASSETS		n=228	n=237	n=246	n=235	n=250	
(MILLIONS		(NA)	(50.70%)	(20.26%)	(22.18%)	(11.33%)	(26.12%)
DOLLARS)	GROUP 2	7879.9 ± 1115.3	10453.5 ± 1889.2	14826.0 ± 4869.7	22903.9 ± 9444.1		
		n=188	n=83	n=54	n=35		
		(NA)	(32.66%)	(41.83%)	(54.48%)		(42.99%)
	GROUP 3		12642.7 ± 2736.3	8687.6 ± 1203.7	12307.2 ± 1691.6	14512.8 ± 1684.9	
			n=44	n=74	n=100	n=197	
			(NA)	(-31.28%)	(41.66%)	(17.92%)	(9.43%)
	GROUP 4	8254.4 ± 1409.0	10118.8 ± 2633.9	16615.4 ± 3574.5	21121.1 ± 5307.5	19336.7 ± 4953.0	
		n=60	n=70	n=105	n=92	n=63	
		(NA)	(22.59%)	(64.20%)	(27.12%)	(-8.45.00%)	(26.37%)
	ALL	9058.2 ± 688.3	13341.2 ± 1069.0	16188.2 ± 1398.7	20140.0 ± 1837.2	20370.9 ± 1598.7	
		n=476	n=434	n=479	n=462	n=510	
		(NA)	(47.28%)	(21.34%)	(24.41%)	(1.15%)	
DIVIDENDS	GROUP 1	.24 ± .01	.24 ± .01	.26 ± .02	.29 ± .02	.35 ± .02	
PER SHARE		n=228	n=237	n=246	n=235	n=250	
(DOLLARS)		(NA)	(1.41%)	(8.41%)	(11.68%)	(22.36%)	(10.96%)
	GROUP 2	.19 ± .01	.28 ± .04	.28 ± .05	.41 ± .12		
		n=188	n=83	n=54	n=35		
		(NA)	(44.20%)	(1.94%)	(44.63%)		(30.25%)
	GROUP 3		.19 ± .04	.19 ± .02	.25 ± .02	.41 ± .07	
			n=44	n=74	n=100	n=197	
			(NA)	(-2.72%)	(34.50%)	(65.57%)	(32.45%)
	GROUP 4	.27 ± .09	.43 ± .09	.34 ± .05	.38 ± .07	.87 ± .43	
		n=60	n=70	n=105	n=92	n=63	
		(NA)	(56.01%)	(-20.75%)	(11.64%)	(130.54%)	(44.36%)
	ALL	.22 ± .01	.27 ± .02	.27 ± .01	.31 ± .02	.44 ± .06	
		n=476	n=434	n=479	n=462	n=510	
		(NA)	(21.76%)	(-1.43%)	(14.82%)	(43.46%)	
BETA	GROUP 1	.84 ± .05	.78 ± .03	.98 ± .04	1.03 ± .03	.98 ± .04	
		n=228	n=237	n=246	n=235	n=250	
		(NA)	(-6.95%)	(25.07%)	(5.27%)	(-5.07%)	(4.58%)
	GROUP 2	.90 ± .05	.90 ± .06	1.01 ± .09	1.10 ± .12		
		n=188	n=83	n=54	n=35		
		(NA)	(0.51%)	(12.08%)	(8.51%)		(7.03%)
	GROUP 3		1.15 ± .07	1.18 ± .09	1.01 ± .06	1.11 ± .04	
			n=44	n=74	n=100	n=197	
			(NA)	(2.74%)	(-14.59%)	(9.72%)	(-0.71%)
	GROUP 4	1.08 ± .12	1.10 ± .08	1.33 ± .07	1.18 ± .06	1.39 ± .09	
		n=60	n=70	n=105	n=92	n=63	
		(NA)	(1.15%)	(21.20%)	(-11.23%)	(17.65%)	(7.19%)
	ALL	.90 ± .03	.89 ± .02	1.09 ± .03	1.06 ± .03	1.08 ± .03	
		n=476	n=434	n=479	n=462	n=510	
		(NA)	(-0.04%)	(22.08%)	(-2.73%)	(1.72%)	

MARKET/ BOOK RATIO	GROUP 1	1.44 ± .10	1.23 ± .06	1.24 ± .05	1.16 ± .05	1.07 ± .05	
		n=228	n=237	n=246	n=235	n=250	
		(NA)	(-14.45%)	(0.84%)	(-6.53%)	(-7.87%)	(-7.00%)
	GROUP 2	1.11 ± .10	1.04 ± .11	1.12 ± .09	.90 ± .13		
		n=188	n=83	n=54	n=35		
		(NA)	(-5.84%)	(7.25%)	(-18.97%)		(-5.85%)
	GROUP 3		1.32 ± .15	1.40 ± .10	1.26 ± .10	1.13 ± .07	
			n=44	n=74	n=100	n=197	
			(NA)	(5.95%)	(-9.85%)	(-10.21%)	(-4.70%)
	GROUP 4	1.11 ± .15	1.21 ± .12	1.12 ± .09	.99 ± .08	.84 ± .08	
		n=60	n=70	n=105	n=92	n=63	
		(NA)	(9.23%)	(-6.80%)	(-11.83%)	(-15.15%)	(-6.14%)
	ALL	1.26 ± .06	1.20 ± .05	1.22 ± .04	1.13 ± .04	1.06 ± .04	
		n=476	n=434	n=479	n=462	n=510	
		(NA)	(-5.19%)	(2.18%)	(-7.91%)	(-5.68%)	
LIQUIDITY CURRENT RATIO	GROUP 1	1.40 ± .06	1.60 ± .06	1.55 ± .06	1.46 ± .05	1.70 ± .09	
		n=228	n=237	n=246	n=235	n=250	
		(NA)	(14.33%)	(-3.21%)	(-5.36%)	(15.82%)	(5.40%)
	GROUP 2	1.43 ± .06	1.69 ± .13	1.69 ± .15	1.74 ± .17		
		n=188	n=83	n=54	n=35		
		(NA)	(17.76%)	(0.34%)	(2.82%)		(6.97%)
	GROUP 3		1.82 ± .19	1.69 ± .13	1.55 ± .10	1.97 ± .12	
			n=44	n=74	n=100	n=197	
			(NA)	(-7.15%)	(-8.40%)	(26.67%)	(3.70%)
	GROUP 4	1.27 ± .07	1.75 ± .11	1.87 ± .21	1.69 ± .09	1.77 ± .14	
		n=60	n=70	n=105	n=92	n=63	
		(NA)	(37.33%)	(6.92%)	(-9.55%)	(4.82%)	(9.88%)
	ALL	1.40 ± .04	1.66 ± .05	1.66 .± 06	1.55 ± .04	1.81 ± .07	
		n=476	n=434	n=479	n=462	n=510	
		(NA)	(19.08%)	(-0.34%)	(-6.50%)	(16.80%)	
DEBT RATIO	GROUP 1	.53 ± .01	.60 ± .01	.59 ± .01	.60 ± .01	.60 ± .01	
		n=228	n=237	n=246	n=235	n=250	
		(NA)	(-0.26%)	(-2.46%)	(2.25%)	(-0.69%)	(-0.29%)
	GROUP 2	.66 ± .01	.61 ± .02	.56 ± 02	.61 ± .03		
		n=188	n=83	n=54	n=35		
		(NA)	(-7.83%)	(-6.79%)	(8.53%)		(-2.03%)
	GROUP 3		.53 ± .03	.53 ± .02	.59 ± .02	.58 ± .01	
			n=44	n=74	n=100	n=197	
			(NA)	(0.47%)	(12.38%)	(-2.62%)	(3.41%)
	GROUP 4	.63 ± .02	.57 ± .02	.55 ± .02	.58 ±. 02	.63 ± .03	
		n=60	n=70	n=105	n=92	n=63	
		(NA)	(-8.86%)	(-3.92%)	(5.88%)	(8.33%)	(0.36%)
	ALL	.63 ± .01	.59 ± .01	.57 ± .01	.60 ± .01	.59 ± .01	
		n=476	n=434	n=479	n=462	n=510	
		(NA)	(-5.97%)	(-3.87%)	(5.11%)	(-0.43%)	

NET	GROUP 1	173.94 ± 28.16	273.80 ± 37.89	410.87 ± 58.94	470.07 ± 71.64	384.46 ± 69.87	
INCOME		n=228	n=237	n=246	n=235	n=250	
(MILLIONS		(NA)	(57.41%)	(50.06%)	(14.41%)	(-18.21%)	(25.92%)
DOLLARS)	GROUP 2	102.62 ± 17.53	153.26 ± 47.74	246.55 ± 68.77	305.49 ± 115.25		
		n=188	n=83	n=54	n=35		
		(NA)	(49.36%)	(60.87%)	(23.90%)		(44.71%)
	GROUP 3		190.71 ± 48.06	206.67 ± 39.62	192.36 ± 57.50	224.48 ± 56.90	
			n=44	n=74	n=100	n=197	
			(NA)	(8.37%)	(-6.92%)	(16.70%)	(6.05%)
	GROUP 4	101.07 ± 35.39	198.87 ± 71.45	364.15 ± 104.99	439.30 ± 164.77	253.46 ± 86.79	
		n=60	n=70	n=105	n=92	n=63	
		(NA)	(96.76%)	(83.11%)	(20.64%)	(-42.30%)	(39.55%)
	ALL	136.58 ± 15.86	230.24 ± 25.89	350.56 ± 39.36	391.37 ± 51.46	306.48 ± 42.16	
		n=476	n=434	n=479	n=462	n=510	
		(NA)	(68.57%)	(52.26%)	(11.64%)	(-21.69%)	
COMMON	GROUP 1	342.33 ± 42.07	467.32 ± 62.72	503.68 ± 59.25	520.65 ± 60.38	509.53 ± 56.86	
SHARES		n=228	n=237	n=246	n=235	n=250	
OUTSTAND		(NA)	(36.51%)	(7.78%)	(3.37%)	(-2.14%)	(11.38%)
(MILLIONS	GROUP 2	232.90 ± 32.21	267.85 ± 45.02	317.35 ± 59.16	330.11 ± 75.24		
SHARES)		n=188	n=83	n=54	n=35		
		(NA)	(15.00%)	(18.48%)	(4.02%)		(12.50%)
	GROUP 3		358.82 ± 75.35	339.64 ± 77.90	444.22 ± 109.17	381.83 ± 60.26	
			n=44	n=74	n=100	n=197	
			(NA)	(-5.35%)	(30.79%)	(-14.04%)	(3.80%)
	GROUP 4	208.48 ± 32.18	406.77 ± 98.18	505.01 ± 89.92	479.69 ± 82.16	329.96 ± 56.19	
		n=60	n=70	n=105	n=92	n=63	
		(NA)	(95.11%)	(24.15%)	(-5.01%)	(-31.21%)	(20.76%)
	ALL	282.24 ± 24.29	408.41 ± 39.53	457.62 ± 38.85	481.52 ± 42.41	438.02± 37.06	
		n=476	n=434	n=479	n=462	n=510	
		(NA)	(44.70%)	(12.05%)	(5.22%)	(-9.03%)	

*Simple average of percentage period changes in each row.

Note: Percentage period change is calculated using actual mean versus table-rounded mean.

Dividends Per Share

For small firms Group 2 has lowest mean % change (-0.43%). This makes sense as these firms all discontinued dividends per share. The large firm Group 2 results of mean % change (30.25%) are unexpected. If they were increasing dividends so strongly, why discontinue them? Perhaps further analysis will shed light here.

The largest mean % change (54.75%) for small firms is with Group 4, even though it is intermittent payment pattern. The largest mean % change (44.36%) for large firms is also Group 4. This provides some support for residual or catering theory being used by both large and small firms.

Beta

All small groups have much larger mean % change than large groups. Small firms are increasing risk much faster than large firms. The highest mean % change (56.12%) is for small firm Group 4. This makes sense, as intermittent dividend per share pattern sometimes results from fluctuating income, which has an impact on beta risk.

Contra wise, the smallest mean % change (-0.71%) Group 3, large firms, shows the only decrease in risk. This group initiated dividends per share. According to traditional dividend theory, a firm only initiates dividends per share if it believes it can sustain such payments into the foreseeable future. Such certainty signals positive news for investors and decreases risk.

Market/Book Value Ratio

All four groups for large size firms show negative mean % change. No dividend approach results in a positive mean for these firms. This is a surprise. The means vary from a low of -7.00% for Group 1 to a high of -4.70% for Group 3. We did not capture a control group of non-dividend paying firms for comparison purposes.

Two of the groups for small size firms did have positive results. Mean % change for Group 1 (1.46%) and Group 4 (4.59%) indicate some growth in the ratio over the 5 time periods. Group 4 results provide some support for residual or catering theory for small firms, while Group 1 results provide weak support for traditional theory. Apparently, investors react more positively to small firms than large firms when following a traditional approach or residual/catering approach. Since more than one group has a positive mean % change, some support exists for a type of clientele effect for these small firms.

Group 3 mean % change is negative for both groups. This is at first a surprise. These firms are initiating dividends and are not rewarded by investors. Further analysis will help to explain this result.

Current Liquidity

For small size firms the mean % change for 3 of the groups is low positive with only Group 3 results (-3.25%) negative. All groups for large size firms have positive results, but once again Group 3 has the lowest results (3.70%). These weak Group 3 results, regardless of size, in mean % change may partially explain the weak results in mean % change for market/book ratio above. Investors perceive increasing risk of insolvency for this group, particularly if the firm is of small size. Variables are not expected to be independent of each other.

Debt Ratio

Group 1 mean % change is negative for both size firms. This group is decreasing their debt ratio as they pursue their dividend payment approach. However, Group 3 mean % change for both size firms is positive, small Group 3 mean % change (5.86%) versus large Group 3 (3.41%). These relatively large results show Group 3, dividend initiators, are increasing debt with small firms leading the way. This increases default risk. Here is a partial explanation for weak Group 3 mean % change in previous market/book ratio results for both size groups, but particularly small firms. Group 3 does not reflect particularly high beta mean % change in previous results. It had the lowest mean % change for both size groups and was even slightly negative mean % change (-0.71%) for large firms. The beta mean % change does not capture this increasing debt ratio mean % change for Group 3.

Net Income

Both small and large size firm groups have positive mean % change results. Group 1 for both size firms have similar mean results. Size does not seem to affect net income growth for this group. Group 2 results are more varied. Small size Group 2 (22.62%) versus large size Group 2 (44.71%) is a large contrast. Large firms that stop paying dividends have a growth rate in net income double that of small firms. This is the highest mean % change of any group.

Small size Group 3 (24.76%) mean % change versus large size Group 3 (6.05%), shows the opposite result. Dividend initiators that are small have a growth rate in net income four times that of large firms. The small size Group 3 mean % change of 24.76% is the highest of the 4 small groups, while the large Group 3 mean of 6.05% is the smallest for the 4 large groups. The strong growth rate in net income is a strong incentive to initiate dividends in small firms.

Small size firm Group 4 has the highest market/book ratio mean % change of any other group, regardless of size. Group 4, residual/catering theory approach to dividend payments, is appreciated more by investors in small firms. Perhaps this is evidence of a clientele effect present.

Shares Outstanding

As expected, all four groups show positive mean % change for both small and large firms. Small Groups 1, 2, and 3 had larger results than large corresponding groups. Large Group 4 (20.76%) is the only group to beat the small group (15.85%). What stands out in the mean % change results is the large size Group 3 (3.80%) low growth rate in shares outstanding. These large dividend initiating firms may have a higher rate of stock repurchases than other groups. This seems somewhat unlikely as this group had the lowest net income growth (6.05%). Where would the money come from for repurchases?

V. Conclusions

Four groups with different dividend payment patterns are derived from quarterly data from 2000 through 2012. Group 1 (traditional) has a stable annual cash dividend. Group 2 (irrelevance) has firms that stop annual dividend payments during the study period. Group 3 (initiators) begin and continue annual cash dividends. Group 4 (residual or catering) includes all other dividend paying firms. A seemingly random payment pattern fits many of these firms. The mean percentage change is calculated for each group for seven variables for five points in time during the study period and arranged into two tables based on small versus large size firms.

For total assets all large size firm groups mean % change are larger than small size firm groups except Group 3. Large result (9.43%) versus small result (17.90%) shows the large Group 3 mean % change is considerably lower than any other group. This low growth rate does not encourage investment in these companies. Highest growth rate is for Group 2 large size firms at 42.99%. Large firms are growing total assets faster than all other firms by following a dividend irrelevant approach.

For dividends per share Group 4 has the largest mean % change for both small and large firms. This may signal good times ahead for the residual/catering dividend approach firms. This is encouraging to investors interested in these firms.

All small firm groups have larger mean % change than mean % change for large group firm groups for the beta variable. Small firms are increasing beta risk at a much faster rate than large firms. Large firm Group 3 mean % change (-0.71%) has the only decrease in risk. Dividend initiators in large firms decrease beta risk over the study period, while no other groups (large or small) are able to match this result.

The mean % change for the market/book ratio variable demonstrates investor reward or punishment from the market over the five time points. All groups have a negative mean % change result except small firm Group 1 and 4. Traditional theory and residual/catering theory are rewarded by investors only for small firms. This supports the clientele effect for small firms, different investors favor different dividend patterns. Group 3 initiators of dividends have the lowest growth rate (-11.72%) of all groups of both size firms. Firms in this group are not being rewarded for initiating dividends. Further analysis shows small Group 3 mean % change (-3.25%) and large Group 3 mean % change (3.70%) for liquidity current ratio. This group has the lowest mean % change for current liquidity for each size category of firms. Small firms are decreasing liquidity over the time points, increasing default risk. Similar results for debt ratio show Group 3 with the highest mean % change, regardless of size. Group 3 small (5.86%) and large (3.41%) have positive relatively high mean % change. These increases in debt ratio mean % change demonstrate growing default risk for this group. Apparently, beta risk does not capture these increases in default risk while the market does.

All groups for both small and large firms have positive net income mean % change. Group 2 had the highest mean % change for large size firms. Small firm Group 4 mean % change (22.91%) is rewarded by Group 4 market/book ratio mean % change being the highest of any size firm group. This is not true for large firm Group 4 market/book ratio mean % change which is negative. It appears investors favor small firms following residual or catering intermittent dividend payment pattern over large firms.

Results for shares outstanding variable show all positive results. Large firm dividend initiators, Group 3, had the lowest growth rate overall. This group also had the lowest net income growth and a negative market/book value mean % change.

Two most interesting study results to the authors are the evidence that both small and large firm Group 3, dividend initiators, are not being rewarded by positive market/book ratio mean % change and that both small Group 1, traditional, and small Group 4, residual/catering, are being rewarded with positive market/book ratios.

For investment purposes, this means does not buy firms that initiate dividend payments and instead seek small firms following a traditional or residual/catering payment pattern. This evidence supports that the clientele effect is present in small firms. Different investors like and reward widely diverse dividend patterns. Firms that initiate dividends or stop dividends are not

rewarded with positive market/book value ratio mean % change. These firms would be less attractive for investment purposes.

Further work might focus on Group 3, dividend initiators, to resolve the issue of no market reward, driven by low liquidity and increasing debt ratio. While at the same time, beta risk is not capturing this increase in default risk. Did the mortgage crisis, stock market decline, and recession impact this group to a greater extent than other groups? More work is needed to answer this question.

References

Baker, K.H., Veit, E.T., and Powell, G.E. (2001). Factors Influencing Dividend Policy Decisions of NASDAQ Firms. *The Financial Review*, 36 (3), 19-37.

Baker, M. and Wurgler, J. (2004). A Catering Theory of Dividends. *The Journal of Finance*, 59 (3), 1125-1165.

Ben-Zion, U. and Shalit, S.S. (1975). Size, Leverage, and Dividend Record as Determinants of Equity Risk. *The Journal of Finance*, 30 (4), 1015-1026.

Brigham, E. and Houston, J. (2012). Fundamentals of Financial Management, concise 7th edition, South-Western, Mason, OH.

Consler, J. and Lepak, G.M. (2007). Characteristics of Industrial Companies Stratified by Dividend Level and Risk. *Journal of the Academy of Finance*, 5 (2), 85-97.

Consler, J., Lepak, G.M., and Havranek, S.F. (2013). Dividend Stability and Firm Characteristics. *The Journal of Financial Issues*, 11 (1), 47-55.

DeAngelo, H., DeAngelo, L., and Skinner, D. (2004). Are Dividends Disappearing? Dividend Concentration and the Consolidation of Earnings. *Journal of Financial Economics*, 72 (3), 425-456.

Fama, E.F. and French, K.R. (2001). Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay? *Journal of Financial Economics*, 60 (1), 3-43.

Folkinshteyn, D. and Meric, G. (2014). The Financial Characteristics of Large and Small Firms Before and After the 2008 Stock Market Crash. *The International Journal of Business and Finance Research*, 8 (1), 1-16.

Gambola, M.J. and Liu, F.-Y. (1993). Considering Dividend Stability in the Relation Between Dividend Yields and Stock Returns. *The Journal of Financial Research*, 16 (2), 139-150.

Havranek, S.F., Consler, J., and Lepak, G.M. (2009). Changes in Both DPS and Important Characteristics of Dividend Paying Firms. *Journal of the Academy of Finance*, 9 (2 & 3), 186-194.

Mitra, D., and Rashid, M. (1997). The Information Content of Dividend Initiations and Firm Size: An Analysis Using Bid-Ask Spreads. *The Financial Review*, 32 (2), 309-329.

Payne, B.C. (2009). On the Financial Characteristics of Firms that Initiated New Dividends During a Period of Economic Recession and Financial Market Turmoil. *Journal of Economics and Finance*, 35 (2), 149-163.

Local Government Debt, a Time-bomb for China's Economy?

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Abstract

China's national audit office reported huge debt accumulated at all levels of local governments in recent years. This paper aims to explain the factors contributing to the local government debt in China with empirical study on the economic development data. The relationship of government debt and economic ratios is examined with the auto-regressive linear equation constructed between the local government debt, fiscal income, GDP growth rate and CPI. Granger causality test is performed to find the granger cause of local government debt from previous year's data. From the analysis, the risk of local government debt is evaluated from the global settings. Policy implications and suggestions are presented at the end.

I. Introduction

When Detroit filed for bankruptcy in 2011, its debt was $18 billion. By comparison, China's national audit office reported that 36 selected cities and local governments owning an average of $17.4 billion each, roughly the same size of debt with Detroit. Hence many researchers have asked the question, whether the huge local government debt would become a time-bomb for China and lead to another financial crisis in the future.

On the other hand, China's economy has grown enormously in the past three decades with an annual GDP increase of about 10%. It's reasonable to assume that the huge amount of economic development is fueled by significant public financing efforts including all levels of government debt in China. In particular, the centralized financial budgeting system established from the 1994 tax reform has set the shared ownership for the tax revenues between central and local governments. The central government has got the most stable and lucrative taxes such as sales and excise taxes while the local governments are poorly funded, which has then raised various forms of debt to support and fuel the local economic growth since then.

The national audit office of China has reported that all levels of the government debt had a total of 30 trillion Yuan ($4.78 trillion), or about 130% of its annual income by the end of June 2013. 59% of them were owned by the local governments. According to the data, the central government debt has been kept stable while the local government debt

has grown significantly in recent years, which is widely viewed as a threat to the economy and may spin out of control. Though Chinese government has recognized the serious of the debt problem and taken measures to address the issues, the debt problem wouldn't be resolved soon due to the complexity of the issues and huge size.

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This paper studies the relationship of government debt and economic ratios with with the auto-regressive linear equation constructed between the local government debt, fiscal income, GDP growth rate and CPI. Furthermore, granger causality test is performed to find the granger cause of local government debt from previous year's data. It proceeds with the analysis of the result with the global settings. Policy implications and suggestions are discussed with the concluding remarks presented afterwards.

II. Literature Review

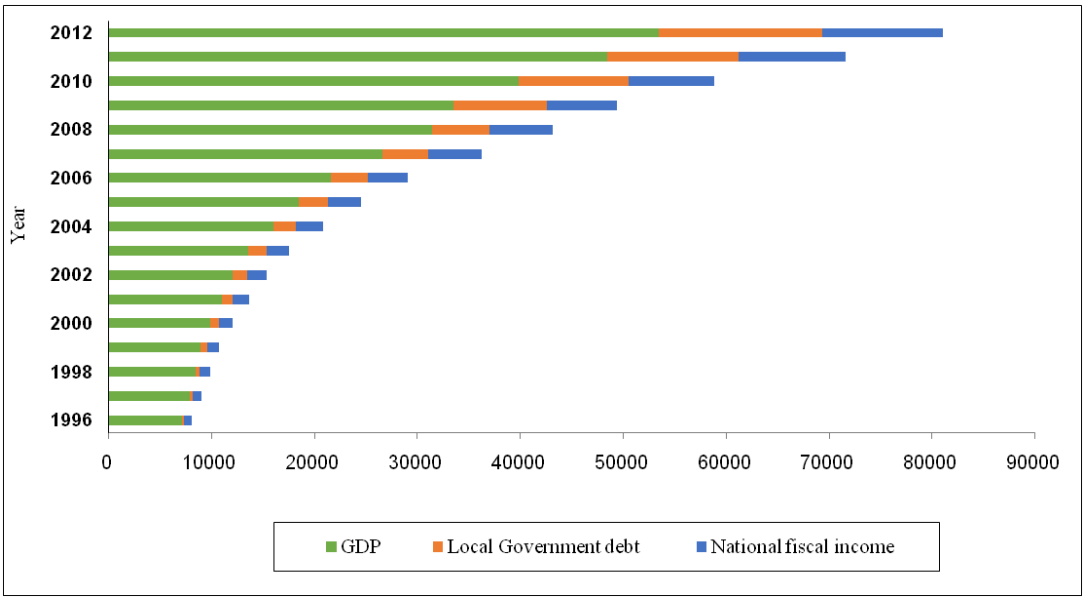
Many researchers have expressed cautionary views on economic growth with high level of government debt. Orszag, Rubin and Sinai (2004) made the claim that rising debt levels could alert investors and cause interest rates to spike so that higher return can be guaranteed for investors to keep financing the debt. The interest rate spike would lead to financial market disturbance or "disarray". Manasse and Roubini (2005) have reviewed the academic literature on sovereign debt defaults and found that exposure to currency risk dominates the probability of debt default or financial crisis. Carment Reinhart and Kenneth Rogoff have analyzed economic data and financial crises across dozens of countries and hundreds of years. Their work published in the book, The Time is Different: Eight Centuries of Financial Folly (2009), has gained much attention about the Growth in a Time of Debt (GITD). The conclusion is that there is no association between debt and growth at low or moderate levels of debt, while the economic growth will be negatively impacted when the threshold of 90% (government debt to the GDP) is crossed. Irons and Bivens studied the United States economy data and argued (2010) that the GITD "90% threshold" for gross government debt should not be used as a guide for U.S. fiscal policy. They found that U.S. has only exceeded the 90% threshold in six of the two hundred and eighteen years, all of them are in the 1940s WWII period. And if removing the defense spending contributions, the GDP growth is nearly double that of the low-debt years. Pescatori et al. (2014) developed econometric models to test the existence of a threshold debt level. It's been claimed that as the United States can borrow in own currency and have independent monetary and exchange rate policies, using the simple ratio of public debt to GDP as a predictor variable is not wise.

The local government debt (short-named as LGD) issues in China have been a hot topic recently. With the rising level of debts, many scholars have shared the concerns. Liu Shangxi and Guo Yanhong (2003) stated that local and central government in China would be ultimately responsible for the fiscal risks if the local debts couldn't be paid back in time. High level of LGD would increase the pressure on fiscal policies and lead to reduced income for the local governments. Zhang Li (2011) reported the relationships between the local government official promotion and raising debt levels for local infrastructure investment. Fan Jiangyong and Mo Jiawei (2014) have found that local governments are strongly motivated to raise debts due to the direct increase on GDP and indirect effect on industrial growth from the leverage of capital investment. The authors reckoned that the model of raising debts for large infrastructure development and economic growth would lead to higher housing cost and endanger risks, hence is not sustainable. Given that there's little information about detailed LGD data, Wu Yanrui (2014) has collected data from China's regional economies and examined the impact of LGD to regional growth in China. It's concluded with an optimistic view that the risk of LGD in China is lower than that observed in most studies of OECD economies, hence the anxiety should be reduced.

III. Data and Methodology

Generally local governments are not allowed to borrow from the public directly by law in China. Due to the shared ownership of local tax revenues with the central government and lack of funding for regional development, local governments have borrowed through the so-called shadow banks or agencies, such as state-owned enterprises (SOEs) and government controlled financial institutions. Such practice has escalated recently and led to an enormous debt with little transparency. For this reason, the national audit office conducted two nation-wide audits of government debt, in 2011 and 2013.

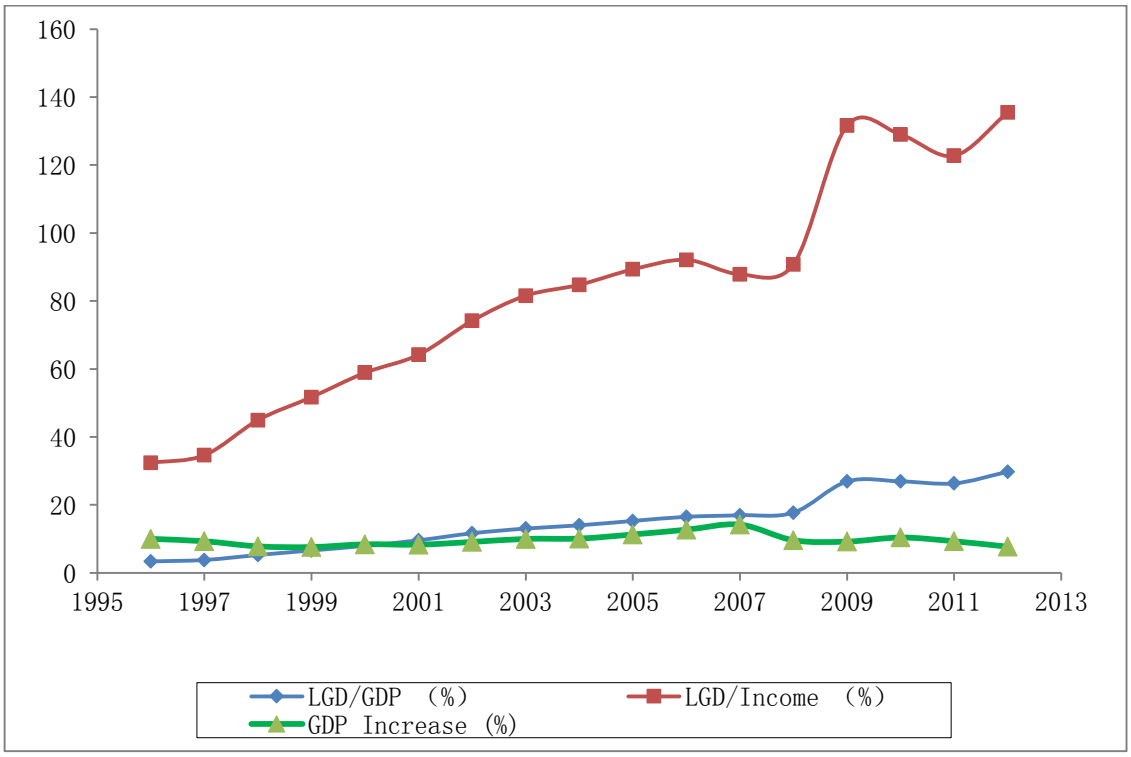
Figure 1: GDP, Local Government Debt and Fiscal Income Growth in China



As shown in Figure 1, the amount of local government debts, GDP and national fiscal incomes are displayed from 1996 to 2012 based on the data obtained from the China Economics and Social Development Statistics database and report from national audit office. It appears that the LGD has increased along with the GDP and fiscal incomes over the years.

The ratios of LDG to GDP and fiscal incomes along with the GDP increase rate are illustrated in figure 2 for the same period. It's clear that local government debt in China has grown significantly since 2008, when the government decided to make huge capital investment in responding to the global financial crisis. Meanwhile, the GDP increase shows the downward trend from the peak of 14.2% in 2007 to 7.7% in 2012.

Figure 2: Ratios of Local Government Debt and GDP Increase in China



To find out the relationships between government debt (referred as Debt), fiscal income (referred as Income), fiscal expense (referred as Expense), GDP and interest rate (referred as R), we assume that the change of government debt is the net difference of fiscal income and fiscal expense after the payout of interest on existing debt， as described below

$$\frac{\mathrm{dDebt(t)}}{\mathrm{dt}} = -[\mathrm{Income(t)} - \mathrm{Expense(t)} - \mathrm{Debt(t)} * \mathrm{R(t)}] \qquad (1)$$

If Y is used to represent the yield, and P stands for the Price, then

$$\mathrm{GDP(t)} = \mathrm{Y(t)} * \mathrm{P(t)} \qquad (2)$$

If we use DR to represent the ratio of government debt to GDP, then

$$\frac{dDR(t)}{dt} = \frac{d[Debt(t)/GDP(t)]}{dt} = \{\frac{dDebt(t)}{GDP(t)} - \frac{Debt(t)}{GDP(t)}[\frac{dY(t)}{Y(t)} + \frac{dP(t)}{P(t)}]\}/dt \quad (3)$$

we plug in equation (1) into (3), and it becomes

$$\frac{\mathrm{d}DR(t)}{dt} = \mathrm{FR(t)} - [\mathrm{YR(t)} + \mathrm{IR(t)} - \mathrm{R(t)}] * \mathrm{DR(t)} \qquad (4)$$

in which we have defined the following variables:

Debt-to-GDP ratio: DR(t) = Debt(t) / GDP(t)
Economic growth ratio: YR(t) = dY(t) / Y(t)
Inflation rate: IR(t) = dP(t) / P(t)
Fiscal deficit ratio: FR(t)=[Expense(t)-Income(t)] / GDP(t)

If we assume the four ratios including YR, IR, FR and R are constant, then Equation (4) is a first order differential equation on DR(t). The solution is

$$DR(t) = \frac{FR}{YR + IR - R} + ce^{-(YR+IR-R)t} \qquad (5)$$

in which, *c* can be any constant.

This means that the government debt will converge if the sum of economic growth rate and inflation rate is higher than the interest rate; otherwise, the government debt will grow out of control.

In China, the government debt usually has a fixed interest rate set by the state owned bank. Hence we should examine the economic growth ratio and inflation rate. With empirical data, the natural logarithm system is used to model the relationship between local government debt, GDP growth ratio, CPI and national financial income in this paper. The following auto-regressive linear equation is constructed:

$$Ln(Debt_t) = k_0 + k_1(GDPGrowth_t) + k_2\, Ln(Income_t) + k_3\,(CPI_t) + u \qquad (6)$$

Description of variables:

Debt: Local government debt （trillion RMB Yuan） in period t.
GDPGrowth: Gross Domestic Product growth ratio (%) in period t.
Income: National fiscal income（trillion RMB Yuan） in period t.
CPI: Consumer Price Index (%) in period t.

The Consumer Price Index is introduced to reflect the impact of inflation. The increase of CPI will discourage government spending and may impact debt level.

IV. Results and Analysis

Eviews software is used to perform the analysis using the ordinary least square method. The result is listed as below.

$$Ln(Debt) = 0.015 * GDPGrowth + 1.48 * Ln(Income) - 0.041 * (CPI) - 0.0045 \qquad (7)$$

The result above shows the calculated result. From the R square value (0.995) and F statistics (892.27)， we can see the estimated equation is pretty good.

Based on the time series data above, Augmented Dickey-Fuller unit root testing (ADF) is conducted to verify the stability of the time series. Table 1 shows that for variable Ln(Debt), Ln(GDPGrowth), Ln(Income) and CPI, the critical value of unit root test statistics at 1%, 5%, and 10% significance levels are less than the value of T-statistic, and therefore the null hypothesis cannot be rejected, namely variable Ln(Debt), Ln(GDP), Ln(Income), CPI are non-stationary series. For each variable in the first order difference, the critical value of unit root test statistics is greater than the value of T-statistic. Hence after the first order difference, the time series of delta Ln(Debt), delta Ln(GDPGrowth), delta Ln(Income) and delta CPI are stable with the same integration order level, which meets the co-integration test requirement.

Table 1: ADF Unit Root Testing Result

Variable	T-statistic	1% level	5% level	10% level	Stable?	Integration order level
Ln(Debt)	-1.225219	-3.920350	-3.065585	-2.673459	No	1st order
△Ln(Debt)	-4.264533	-3.959148	-3.081002	-2.681330	Yes	
GDPGrowth	-1.635215	-3.9203495	-3.065585	-2.673459	No	1st order
△GDPGrowth	-3.164997	-3.959148	-3.081002	-2.681330	Yes	
Ln(Income)	0.770552	-3.920350	-3.065585	-2.673459	No	1st order
△Ln(Income)	-3.626722	-4.004425	-3.098896	-2.690439	Yes	
CPI	-1.488997	-4.004425	-3.098896	-2.690439	No	1st order
△CPI	-4.055509	-3.769597	-3.004861	-2.642242	Yes	

Next, the residual (e_t) is inspected according to the estimation results and the residual time series. Table 2 displays the result of Augmented Dickey-Fuller unit root testing on the residual.

Table 2: Residual Testing Result

Residual	T-statistic	1% level	5% level	10% level	stable?
e_t	-3.064736	-3.959148	-3.081002	-2.681330	Yes

As the T-statistic value of -3.064736 is close to or less than the critical value of unit root test statistics at 5% and 10% significance levels, the residual (et) is considered as a stationary series. The results show that during the period from 1996 to 2012, Ln(Debt) has co-integration relationship with GDPGrowth, Ln(Income) and CPI with the co-integration vector of (0.015, 1.48, -0.041). Thus there is a long-term equilibrium relationship between Ln(Debt), GDPGrowth,

Ln(Income) and CPI.

To further analyze the cause-effect relationship between the variables of Ln(Debt), GDPGrowth, Ln(Income) and CPI, the Granger causality test is performed with Eviews and here is the result：

Table 3: Granger Causality Test Result

	Lags: 1		Lags: 2		Lags: 3	
Null Hypothesis:	F-Statistic	Prob.	F-Statistic	Prob.	F-Statisti	Prob.
GDPRATE does not Granger Cause LNDEBT	0.54765	0.4724	31.8717	5.E-05	14.3306	0.0023
LNDEBT does not Granger Cause GDPRATE	0.08609	0.7738	0.29891	0.7480	0.17221	0.911
LNINCOME does not Granger Cause LNDEBT	2.89658	0.1125	4.64112	0.0375	6.56409	0.0192
LNDEBT does not Granger Cause LNINCOME	3.45749	0.0857	2.02944	0.1821	0.4900	0.700
CPI does not Granger Cause LNDEBT	0.34873	0.5650	3.21221	0.0837	3.41354	0.0820
LNDEBT does not Granger Cause CPI	4.84415	0.0464	3.84090	0.057	8.37952	0.0102

From the result, it's clear that at Lag 1 the null hypothesis is accepted, but since lag 2 the null hypothesis is rejected. The probabilities that the GDP growth rate doesn't granger cause Ln(Debt), and the Ln(Income) doesn't granger cause Ln(Debt) are below 5%，hence the GDP growth rate and Ln(Income) are considered as the Granger cause for Ln(Debt) after the 2nd year; similarly, CPI doesn't Granger cause Ln(Debt), but Ln(Debt) is the Granger cause for CPI.

V. Policy implications

From the above analysis, it's interesting to find that the government debt level grows as the fiscal income and GDP growth rate increase. This implies that local government official's intent to raise more debt when they have more fiscal income and become more confident on their financial status, or when they see a better GDP growth coming out from the previous investments. This explains that the local government have leveraged the debts for fast economic growth. It's also interesting to find that CPI has a negative impact on the local government debt. When CPI increases, it increases the cost for local governments to borrow, and purchase raw materials for the local infrastructure development projects. Considering the budget and other fiscal constraints, local government officials tend to raise less debts.

Prior to 2008, the increase of global leverage and debt issues were largely led by the developed countries; but after that, the developing countries are considered by the international community as playing the major role for the rising global leverage. This means that developing

countries may become the protagonist of the next financial crisis. As the world's largest developing country and 2nd largest economy, China's increasing leverage and particularly, LGD issues have been on alert.

To deal with the threat, the local governments are setting up various alarm systems that can evaluate the debt default risk from time to time by collecting different economic data and analyzing their combined impact to the debt pay back capabilities of the governments. However, this type of alarm system cannot resolve the debt problem on its own. To increase the transparency of financial data, one resolution is to allow local governments to issue bonds, which will help reduce the risks from uncertainty. In 2014, ten provinces and municipalities including Beijing, Jiangsu, Shanghai, Shenzhen, Guangdong, Zhejiang, Jiangxi, Shandong, Ningxia and Qingdao received approval from the Ministry of Finance for the first time to issue local government bonds directly. This represents a major change in public finance and governance and may have implications for regional economic development in China. In addition, it's been suggested to add debt reduction progress as part of the performance evaluation matrix along with the economic development and environment protection for local government official promotion. This may help reverse the trend of debt accumulation from the management level. Finally, the reform of tax revenues system with the re-balanced responsibilities and ownership between central and local governments can significantly change the way local governments finance regional economic development activities, and may resolve the local debt issues ultimately. In summary, we think the local debt problem in China should be resolved with further balance of financial authority and responsibilities between the local and central governments, prudent investment and increased transparency on government fiscal spending, reforms on local official promotion mechanism from GDP-driven to a more balanced sustainable development approach.

VI. Concluding Remarks

After the Greek debt crisis broke out and Detroit filed for bankruptcy, China's rapid increase of debt accumulated at all levels of local governments has brought much attention. Based on the Economics and Social Development data, the local government debt issues are analyzed and the auto-regressive linear equation is constructed to study the relationship between local government debt level, the fiscal income, GDP growth rate and CPI. From the equation, it's interesting to find that the government debt level grows as the fiscal income and GDP increases. This explains that the local governments have leveraged the debts extensively for economic growth. It's also interesting to find that CPI has a negative impact on the local government debt amount. Further analysis shows that Ln(Debt) has co-integration relationship with GDPGrowth, Ln(Income) and CPI with the co-integration vector of (0.015, 1.48, -0.041). The GDP growth rate and Ln(Income) are the granger causes for Ln(Debt) after the 2nd year， which implies that the local governments have determined the amount of debt to be raised by considering the GDP growth rate and fiscal income from the two years before.

According to the national audit office, China's growth rate in 2015 has gone down below 7% for the first time in last 25 years. It's apparent that China's economic growth is slowing down with the annual GDP increase of 10% during the last several decades to about 7% in recent years. The GDP-driven economic development has led to the economic boom with wide-spread pollution and large amount of debts accumulated at all levels of governments. Chinese government has begun to

take serious measures such as promoting thrifty with reduced spending budget, and eliminating debts aggressively on a pre-set schedule. Based on the research, the government debt would converge if the economic growth were maintained at a modest level with the interest rate kept low. It's reasonable to state that the LGD issues in China are manageable though caution and close monitoring on the status should be remained in the coming years.

References

Afonso, A. & Jalles, J. T. (2013),"Growth and Productivity: The Role of Government Debt", *International Review of Economics and Finance*, Vol. 25(C), 384–407.

Anthony, G. Y. & Wu, F. L.(1996), "The New Land Development Process and Urban Development in Chinese Cities", *International Journal of Urban and Regional Research,* Volume 20, Issue 2, 330–353, June.

Afonso, A., Arghyrou, M. G. & Kontonikas, A. (2014), "Pricing Sovereign Bond Risk In The European Monetary Union Area: An Empirical Investigation", *International Journal of Finance & Economics*, Volume 19, Issue 1, 49–56, January.

Baum, A. & Checherita-Westphal, C. & Rother, P. (2013), "Debt and Growth: New Evidence from the Euro Area", *Journal of International Money and Finance*, Vol. 32(0), 809–821.

Cai, H. & Treisman, D. (2005), "Does Competition for Capital Discipline Governments? Decentralization, Globalization, and Public Policy", *American Economic Review,* Vol. 95(3), 817–830.

Checherita-Westphal, C. & Rother, P. (2012), "The impact of high government debt on economic growth and its channels: An empirical investigation for the euro area"，*European Economic Review*, Elsevier, vol. 56(7), 1392–1405.

Cochrane, J. H. (2011), "Understanding policy in the great recession: Some unpleasant fiscal arithmetic," *European Economic Review*, Elsevier, vol. 55(1), 2–30, January.

Diamond, P. A. (1965), "National Debt in a Neoclassical Growth Model", *American Economic Review*, Vol. 55(5), 1126–1150.

Fan, J. & Mo, J. (2014), Analysis of Local Debts, "Land Supply and Local Industrial Growth", *Economic Research* [China], 1: 41–55.

Faraglia, E. & Marcet, A. & Scott, A. (2010), "In Search of a Theory of Debt Management", *Journal of Monetary Economics,* Elsevier, vol. 57(7), pages 821-836, October.

Furceri, D. & Zdzienicka, A., "How costly are debt crises?," *Journal of International Money and Finance*, 2012，Elsevier, vol. 31(4), pages 726–742.

Ghosh, A. R. & Kim, J. I. & Mendoza, E. G. & Ostry, J. D. & Qureshi, M. S. (2013), "Fiscal Fatigue, Fiscal Space and Debt Sustainability in Advanced Economies," *Economic Journal*, Royal Economic Society, vol. 0, pages F4–F30, 02.

Kourtellos, A. & Stengos, T. & Tan, C. M. (2013), "The effect of public debt on growth in multiple regimes," *Journal of Macroeconomics*, Elsevier, vol. 38(PA), pages 35-43.

National Audit Office (2011), Local Government Debt Audit Result in China, Pub. 35 from http://www.audit.gov.cn/n1992130/n1992150/n1992500/2752208.html.

National Audit Office (2013), Local Government Debt Audit Result of 36 Cities, Pub. 24 from http://www.audit.gov.cn/n1992130/n1992150/n1992500/3291665.html.

National Audit Office (2013), Local Government Debt Audit Result in China, Pub. 32 from http://www.audit.gov.cn/n1992130/n1992150/n1992500/3432077.html

Panizza, U. & Presbitero, A. F. (2013), "Public Debt and Economic Growth in Advanced Economies: A Survey," *Swiss Journal of Economics and Statistics*, Swiss Society of Economics and Statistics (SSES), vol. 149(II), pages 175–204, June.

Reinhart, C. M., and K. Rogeoff (2010), "Growth in a Time of Debt", *American Economic Review*, Vol. 100(2), 573–578.

Reinhart, C. M., V. R. Reinhart, K. S. Rogoff (2012), "Public Debt Overhangs: Advanced-Economy Episodes Since 1800", *Journal of Economic Perspective*, Vol. 26(3), 69–86.

Teles, V. K. & Caio, C. M. (2014), "Public debt and the limits of fiscal policy to increase economic growth," *European Economic Review,* Elsevier, Vol. 66(C), 1–15.
Xu, J. G., and Zhang, X. (2013), “the Current Status, Sourcing and Risk Analysis of Government Debt in China”, *Southern China Economy* [China], Issue 1.

How are Banks Valued? An Examination of Research Reports in Europe

José Luis Velasco and K. Matthew Wong

Abstract

The idiosyncratic attributes of banks call for the use of valuation methods that are adapted specifically for the peculiar characteristics of the banking business with due regards to the special roles played by the industry's leverage and capital constrains. This study reviews 171 research reports on the valuation of some of the largest European banks in 2011. The results of the research indicate that there is divergence between the financial literature and the real world. Equity analyst, in general, use valuation models that are more closely adapted to the specific characteristics of banks and not always follow what the financial literature proposes as the core methods for bank valuation. This finding suggests that there is ample room for further research to re-evaluate the banking valuation methodologies in the literature.

I. Introduction

A central characteristic of modern capital markets is the constant need to value assets. Asset valuation may be needed in valuing public companies, in a corporate transaction, for value management purposes, or as a result of corporate restructuring. Although financial analysts may choose different valuation models to estimate the fair market value, most of the models are somewhat similar in that they involve discounting the expected cash flows to securities' owners to the present time.

In the case of financial institutions and banks, the valuation process can deviate significantly from the generic valuation approaches. There are three main features of the banking industry that support this more customized approach: the use of financing as a factor of production, the high degree of leverage, and the heavy influence of government regulations in the business.

This paper studies bank valuation methods from a practitioner's perspective. It reviews how stock analysts determine absolute or relative valuation of European bank securities. It also studies how aligned the models used in practice are with the valuation models proposed in the finance literature.

The sample used for the research consists of 171 stock reports in 2011 from 18 different research houses covering euro based European banks. The study summarizes the valuation models employed by different analysts and identifies the preferred methods of valuation. The results of the study show that there are differences in how banks are actually valued and what the literature advocates. We conclude that there is room for further research to develop a more general valuation framework for banks to reconcile the theoretical models and what practitioners are doing.

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There have been a large number of studies addressing the theoretical modeling needs of bank valuation. However, to date there have been no studies surveying the actual bank valuation methods used by equity analysts who specialized in banks. This paper seeks to fill this void and contributes to our understanding of the practical adaptations made by practitioners.

Due to data availability, this study limits itself to a survey of the sell-side analysts in major European house. However, there are no reasons to believe that buy-side analysts and U.S. houses would use methods that are substantially different from their counterparts in Europe. After all, both buy side and sell side analysts face similar issues in evaluating banks. And most major European houses surveyed in this research have substantial presence in the U.S., as do their U.S. counterparts in Europe.

This research shows that notwithstanding academics strongly advocate the use of the free cash flow for shareholders (FCFE) model in banking valuation, virtually none of the surveyed analysts apply the method strictly. Probably because modern banks are a highly complex and conglomerate operation with many different diverse businesses, the most popular valuation model used is a rather ad hoc "sum of the parts" (SOTP) method and the bank's dividend yields. Because of their ad hoc nature, these methods are barely mentioned in the literature. As a result, future research should more methodically dissect the banking business into reasonable parts and look into the theoretical basis of valuation method for each part of the business. At the same time, it would be interesting to examine the portfolio effect of the sum of these parts on the banking conglomerates.

II. Are Banks Special?

In contrast to industrial companies, the financial structure of a bank is influenced not only by the desire to seek an optimal capital structure, but also by how the business is actually conduct. For a manufacturing company, financing is separated from its operations. In contrast, for a bank financing is part of its operations (Gross, 2007, p. 22). Clients' deposits are a production factor of the intermediation function carried out by the bank. This characteristic of banks makes it difficult, or close to impossible, to determine what part of the liabilities is structural financing and what relates to operations (i.e. what is long-term debt and what is working capital?).

Additionally, the high level of leverage in banks compared with non-financial companies compounds the impact of the problem. Non-equity financing carries a much larger weight than equity financing on the balance sheet of a bank and the cost of capital of non-interest bearing deposits is difficult to determine (Copeland et al., 2000, pp. 434-435).

These two issues led some to favor equity oriented valuations when dealing with banks, because the company's cost of capital calculation is simplified as there is no need to disentangle the liability structure of the bank. Also, the normal enterprise valuation approach presents an additional problem in situations where the spread between loans and the cost of capital is low, small estimation errors may produce significant changes in the valuation (Copeland et al., 2000, p. 435).

Another concern is the core banking process of transforming deposits into credits and loans. First, interest rate spreads are subject to asset and liability repricing which is also a function of the degree of mismatch between asset and liability. Given the high degree of leverage of banks, small changes in these variables can produce an exponential effect in future earnings and cash flows.

Second, loan related losses are an intrinsic element of the lending activity and are highly correlated with the business cycle. Again, small changes in the percentage of bad debts in respect of total loans may have a dramatic impact in the bank's profitability and even its long-term viability.

Third, a bank's profitability is closely related to the level economic activity. This relationship is often reinforced by the fact that in times of general economic weakness, the regulatory measures tend to be more pro-cyclical than counter-cyclical. Banks also impose more stringent financing requirements on clients in bad times. Chen (2001, p. 416) posits that "the initial effect of a shock to bank capital propagates into subsequent periods through the interaction of credit constrains on the banks as well as on entrepreneurs, which together cause a spiral fall in bank lending and investment."

Fourth, in large international banks, the business is not limited to the intermediation process between lenders and borrowers. Much to the contrary, it comprises many different activities such as investment banking, payment services and other commission based products, private banking, asset management, securities services, and the provision of capital markets products. The existence of so many activities within a bank, together with the use of bundle pricing in many instances, makes it difficult to determine what is actually driving the results of the bank

This characteristic of the banking business makes it especially important to understand how the transfer pricing amongst different units (including the corporate center) is determined. A good grasp of the transfer pricing mechanics in a bank is the key in any valuation context. It is of critical importance when banks are valued by first examine different locales and business units separately and then applying appropriate multiples and costs of capital for each business unit.

Finally, the banking industry is heavily regulated such that legislation has a material impact on both the business structure and the profitability level. From this perspective, the amount of capital stands out as the key variable. The level of total and core capital determines the level of lending activity and the potential growth of the bank's various business lines. For example, under the Basel II capital accord (Basel Committee on Banking Supervision, 2006), minimum capital is calculated as a function of credit risk (based on risk weighted assets), operational risk, and market risk.

III. Bank Valuation Models in the Literature

Most works that deal with bank valuation start with a similar tenet that banks are difficult to value and very different from other companies (see, for example, Copeland et al., 2000, p. 433; Damodaran, 2002, p. 575). Even if both premises are considered valid, one can also argue that banks are just as different as a manufacturing company from a utility, or no more difficult to

value than valuing a technology driven company where a breakthrough discovery can make the difference between failure or outstanding profits.

In general, the literature treats banks as a special case for the application of the generic methods and no unique tools are developed to value financial institutions. Additionally, few papers cover the adjustments that may be required when valuing banks (Gross, 2007).

Copeland et al. (2000, pp. 434-435) advocate the use of the FCFE model as the main valuation tool for banks. Under this approach the free cash flow to shareholders is usually calculated as net income plus depreciation, plus sources and minus uses of cash flows that are derived from the balance sheet analysis (including the repayment of loans net of provisions, and the cash consumption resulting from new loans). The main hurdle in this approach is to determine what part of the equity cash flow has to be retained in the business to support growth and to comply with the capital ratio requirements.

Damodaran (2002, pp. 579-600) recommends a wider range of valuation methods for banks, favoring those models that focus on equity rather than on the whole firm.

Assuming that all firms will eventually pay as dividends all available cash flow to equity, the dividend discount model (DDM) is presented as a convenient formulation for the FCFE approach. Alternatively, the free cash flows to equity can be determined by estimating the reinvestment needs of the bank on the basis of the minimum capital ratios. The fact that banks tend to pay out more in dividends than other companies makes the use of the DDM especially appropriate. In this situation, dividends can be a reasonable proxy for free cash flow to equity.

Regarding the growth estimates, the general growth model in which g is equal to the retention ratio times ROE is particularly well suited for bank valuation. Since the bank's financial assets are marked to market, the ROE is a more dependable metric for banks compared with the ROE in industrial companies. And the link between retention rate and the minimum capital ratios helps to reasonably forecast future growth (Damodaran, 2002, p. 584).

The residual income valuation model (RIV) can be adapted to bank valuation as well. RIV measures market equity value as a function of book value plus the discounted expected abnormal earnings (net earnings above the cost of equity):

$$V_t = B_t + \sum_{\tau=1}^{\infty} (1 + r)^{-\tau} E_t(X_t - r * B_{t-1}) \quad (1)$$

where V_t is the value equity at time t, B denotes book value, r is the cost of equity, X represents net earnings in the period ending at date t, and E is the expectation operator based on the information known at time t.

Assuming a clean surplus relation exists (i.e. book value in period t is equal to book value in the prior period plus retained earnings for the period t), and that the book value of equity grows at rate less than $1 + r$, the RIV method is mathematically equivalent to the discounted value of expected dividends (Lo & Lys, 2000, p. 341).

Again, as most bank's assets and liabilities are marked to market, the accounting value of equity for a bank is much closer to the market value than that of a manufacturing firm. The limited impact of depreciation in banks also makes it reasonable to use equity value as the starting point for this valuation approach (Damodaran, 2002).

Given the nature of the banking business, asset-based valuation is considered appropriate for banks only in those instances in which there is limited or no growth. Assets and liabilities can be assessed using expected transaction prices in the market. And the expected cash flows of each asset are then discounted at the applicable cost of capital.

Finally, relative valuation focusing on the measures of price to earnings (P/E) and price to book (P/B) is also a valid methodology for bank valuation. The strong relationship between P/B and ROE for financial services firms suggests the convenience of examining both ratios simultaneously. Nevertheless, different business lines within a diversified banking institution may command different P/Es. To deal with such diversity, it is possible to value each business independently at the appropriate multiples and then arrive at the combined total value of equity. This approach is known amongst practitioners as the sum of the parts model (SOTP).

SOTP is extensively used by practitioners but not well covered in the literature. For a discussion of how to apply this methodology and the main issues it has to overcome (amongst others, valuation of the corporate center, assessment of the transfer pricing quality, and allocation of equity amongst divisions), Fernández & Pérez (2008), and Morales & Martínez (2006) treat the subject with some degree of depth.

In her study, Gross (2007) examines a sample of 290 stock exchange listed banks worldwide for the period 1989-2002 with a market value of USD 1.646 bil. in 2002, which represents about 44% of the worldwide banking market capitalization. Estimated ex-post intrinsic values using the DDM and the RIV model (including a decay factor) versus observed market values for the period 1989 to 1998 suggest that the RIV model dominates the DDM model in bank valuation.

In addition, asset based and relative valuation methods can play a supplementary role. Liquidation price of a bank’s assets serves as a floor for its value. Market-oriented valuations also play an important role. Gross (2007) finds that P/E multiples have a limited explanatory power, especially in the case of diversified banks in which P/E vary markedly from one business activity to another. On the other hand, P/B provides a summarized view of market's expectations about future performance relative to the invested capital, which according to her study, is a better indicator to use in valuing banks.

IV. Bank Valuation in Practice

This study reviews 171 research reports on European banks produced by 18 different research houses (international and domestic). We seek to identify the principal valuation methodologies used by sell side analysts and examine how aligned these methodologies are with the current literature.

Out of the 171 reports, 155 were available in Bloomberg and another 14 were obtained from other sources. With the exception of two reports that were written in 2010, all of them were dated 2011. The type of documents that were analyzed included full bank research reports, comprehensive analysis of the European banking sector, and research updates linked to new earnings figures or other emerging information in the market.

The sample used was limited by the authors' ability to access the actual reports, a methodological issue that can limit the ability to generalize the findings of this research (see Trochim, 2005, pp. 27-29). However, this limitation is ameliorated by several factors: 1) banking today is a global activity from a business and regulatory perspective; 2) most of the research houses are global institutions that are more likely than not to use a standardize approach to valuation; and 3) although the featured banks are Europe based, many of them have a substantial proportion of their business in other parts of the world.

The following tables summarize the research approaches used in different reports. It is possible that some research houses use other valuation techniques in different types of analysis (such as mergers) that are not part of our sample.

Table 1 tabulates the valuation multiples used in different reports. Table 2 shows the principal valuation models applied by different research houses. The financial ratios that are considered key factors in the valuation process are listed in Table 3.

Table 1: Valuation Multiples

Research House	P/ E	P/ PPP	Price/ GOP	Div. Yield	P/ Book	P/NAV P/TBV	ROE	Implied ROE
Iberian Equities	*	*		*	*			
Goldman Sachs	*			*	*	*	*	
Cheuvreux-Crédit Agricole	*	*		*		*	*	
BBVA Research	*			*	*	*	*	
Bersntein Research	*			*	*	*	*	*
Morgan Stanley	*			*	*	*	*	
Société Générale	*			*	*	*	*	
J. P. Morgan Cazenove	*			*	*	*	*	
Deutsche Bank	*			*	*	*	*	
Natixis	*		*	*	*		*	
Credit Suisse	*	*		*		*	*	
Santander	*			*	*	*	*	
Royal Bank of Scotland	*			*	*		*	
Macquaire	*			*	*	*	*	
HSBC	*	*		*		*	*	
Commerzbank	*			*	*		*	
Mediobanca Securities	*			*	*			
N+1 Equities	*			*		*		
Total Cos.: 18	18	4	1	18	14	13	15	1

Source: 171 research reports from different equity research houses downloaded from Bloomberg (155) and from other sources (14) covering the 6 banking groups included in Eurostoxx 50 and some other European banks. All reports are dated in 2011 with the exceptions of Bernstein Research and Iberian Equities which are dated in 2010.

Column headings descriptions: P/E (price to earnings), P/PPP (price to pre-provisions profit), Price/GOP (price to gross operating profit), Div. Yield (dividend yield), P/Book (price to book), P/TBV (price to tangible book value, ROE (return on equity), Implied ROE (implied return on equity) which is calculated as P/B x k_e, and ignoring the term g x k.

The information contained in these tables together with the analysis of previous sections provides sufficient insights to understand how sell side analysts evaluate banks. The following itemized list summarizes the differences and similarities between what is advocated in the literature and what is used by practitioners. It also highlights cases where some research houses may stray from the more generic approach:

Table 1 above shows that only two multiples are present in all reports: P/E and dividend yield. Apparently, despite all the limitations, the financial market continues to use earnings based valuation as a baseline, and dividends play a significant role in the market assessment of banks. The use of earnings based multiples though, is consistent with some of the academic positions noted previously in this paper.

The results in Table 1 also indicate that some research houses rely on the ratio of P/PPP (price to pre-provisions profit) as well to isolate the performance of the bank from the quality of the loan portfolio. This ratio is seldom mentioned in research of bank valuation.

Table 2: Principal Valuation Models

			SOTP		P/Book	
					Intrinsic	
			Implicit	Comparable	Value	EV/
Research House	DDM	SOTP	P/E	P/E	(GGM)	EBITDA
Iberian Equities		*				
Goldman Sachs					*	
Cheuvreux-Crédit Agricole		*	*			
BBVA Research						
Bersntein Research		*				
Morgan Stanley		*			*	
Société Générale	*	*		*	*	
J. P. Morgan Cazenove		*		*	*	
Deutsche Bank		*		*		
Natixis	*	*			*	
Credit Suisse		*		*		
Santander		*			*	
Royal Bank of Scotland						*
Macquaire					*	*
HSBC						
Commerzbank						
Mediobanca Securities		*			*	
N+1 Equities						
Total Cos.: 18	2	11	1	4	8	2

Source: 171 research reports from different equity research houses downloaded from Bloomberg (155) and from other sources (14) covering the 6 banking groups included in Eurostoxx 50 and some other European banks. All reports are dated in 2011 with the exceptions of Bernstein Research and Iberian Equities which are dated in 2010.

Column headings descriptions: DDM (dividend discount model), SOTP (sum of the parts), Implicit P/E (implicit price to earnings), Comparable P/E (comparable price to earnings), P/Book Intrinsic Value [GGM] (price to book intrinsic valuation based on the Gordon growth model), EV/EBITDA (enterprise value to earnings before interest, taxes, depreciation and amortization).

Consistent with the literature, the P/B ratio is a key multiple in banking valuation. Analysts also refine their analysis by adjusting intangible assets and goodwill from book value to produce more comparable and conservative figures.

P/B, ROE, Implied ROE, and P/B Intrinsic valuations are used by a significant number of analysts (as shown in Table 1) to support both their relative and absolute valuations. This

approach is consistent with our discussion above regarding the relatively good quality of book estimates in banks and the relevant role of capital in shaping the structure of the business.

Rgarding the use of discounted cash flow method, Table 2 above shows that none of the reports use the FCFE methodology straightly. Only two research teams apply a variant of the FCFE method and limit themselves to the use of DDM of different degrees of complexity. There are probably two reasons that support this approach. First, calculating free cash flow to shareholders from outside the bank is quite difficult. Second, in cases where banks are running very tight capital ratios it can be safely assumed that dividends are a good proxy of the maximum amount of free cash flow to equity.

Table 3: Other Valuation Metrics and Ratios

Research House	Return on TBV	Return on RWA	Core Capital Tier 1	ROIC	Cost to Income	NPL Ratio
Iberian Equities						*
Goldman Sachs			*			
Cheuvreux-Crédit Agricole	*	*			*	
BBVA Research	*		*			
Bersntein Research	*					
Morgan Stanley	*	*	*		*	*
Société Générale	*	*	*		*	*
J. P. Morgan Cazenove	*	*	*		*	*
Deutsche Bank	*	*	*	*	*	*
Natixis	*	*	*		*	
Credit Suisse						
Santander	*				*	
Royal Bank of Scotland			*	*		
Macquaire	*	*	*		*	*
HSBC		*	*		*	*
Commerzbank			*			
Mediobanca Securities			*			*
N+1 Equities	*					
Total Cos.: 18	11	8	12	2	9	8

Source:171 research reports from different equity research houses downloaded from Bloomberg (155) and from other sources (14) covering the 6 banking groups included in Eurostoxx 50 and some other European banks. All reports are dated in 2011 with the exceptions of Bernstein Research and Iberian Equities which are dated in 2010.

Column headings description: Return on TBV (return on tangible book value), Return on RWA (return on risk weighted assets), Core Capital Tier 1, ROIC (return on invested capital), Cost to Income, NPL Ratio (non performing loans ratio).

Despite the fact that both the literature and most in the field valuation models seek to value equity and not the whole enterprise, there are still examples of report that include company based metrics such as EV/EBITDA and P/E.

It should also be noted that none of the research houses listed in Table 2 use the RIV methodology, even though this metric can be calculated for banks in a rather straight forward manner and it has theoretical support as discussed previously.

Finally, Table 3 demonstrates that some analysts do apply other metrics to examine the quality and health of the banking business. Amongst them, the level of regulatory capital, the operating efficiency, and the quality of the loan portfolio stand out.

Table 3 also illustrates that SOTP is a fundamental instrument in the bank analyst's toolbox. However, it has been very scarcely discussed in the financial literature. A bank analyst may break down its analysis of the bank by various geographical locations or business lines, or both. Each unit can be valued using any of the available methodologies. Other businesses such as asset management can be valued using different metrics such as multiples based on assets under management.

In summary, we observe that in some cases practitioners use models that are proposed and supported in the literature, but in other cases there seems to be some divergence between the finance literature and reality. Apparently, there is still much need to strengthen the theoretical foundation of bank valuation methodologies used in the field.

V. Conclusions

Bank valuation methods are based on the same assumptions as those applied to other manufacturing companies. However, special attributes of the banking business such as high leverage level, role of capital, government regulations, and bad debt provisions, limit the applicable techniques to only a subset of the generic methods. The finance literature argues for those methods that use discounted cash flow to equity (FCFE, DDM, RIV) as well as those methods that are based on market multiples (P/E or P/B).

The general practice of marking assets to market in banking provides additional support to those ratios that are related to equity, such as ROE or the P/B ratio. The equation that relates P/B to ROE, expected growth, and cost of equity through the Gordon growth model is one of the cornerstones of bank valuation due to the significance of capital in shaping the banking business and the fact that in banks, book value closely reflects asset market prices.

The sample reports in this study show that sell side analysts use, as it cannot be otherwise, similar tools proposed in the literature. However, there are some clear deviations from the general literature in their more ad hoc approaches. First, there is no use of the general FCFE model, probably because of the difficulty in estimating free cash flows beyond the dividend figure. A very small number of research houses that use discounted cash flow valuations limited such use to the DDM approach.

Second, the analysts not only examine book value with respect to market price, but also estimate adjusted book value (net asset value or tangible asset value) to take into account the existence of intangible assets in some banks.

Third, the dividend yield ratio is evaluated by all research houses with no exception, and this metric is hardly mentioned in the literature. Also, the SOTP method is used extensively by the vast majority of research houses, especially in the case of large and geographically diverse banks with multiple business lines.

There are at least two potential areas with theoretical and applied appeals to advance this line of research. On the one hand, it would be of interest to produce an integrated theoretical framework of the different valuation methodologies used in the banking industry, including those techniques used by practitioners and less covered in the literature. On the other hand, this research can be extended to include a larger sample, perhaps including research from different locales and different businesses (mainly sell side, buy side, and investment banking), in order to ascertain the validity of the findings and generalize the results. Given the proliferation of global banks in recent years, the findings here should be relatively robust. Nevertheless, cultural differences and industry practice in local areas can still exhibit markedly different patterns

References

Basel Committee on Banking Supervision (June, 2006). *International Convergence of Capital Measurement and Capital Standards: A Revised Framework Comprehensive Version.* Basel: Bank for international Settlements.

Chen, N. K. (2001). Bank Net Worth, Asset Prices and Economic Activity. *Journal of Monetary Economics, 48*(2), 415-436.

Copeland, T., Koller, T., & Murrin, J. (2000). *Valuation: Measuring and Managing the Value of Companies* (3rd. ed.). New York: John Wiley and Sons, Inc.

Damodaran, A. (2002). *Investment Valuation: Tools and Techniques for Determining the Value of any Asset* (2nd. ed.). New York: John Wiley and Sons, Inc.

Fernández, J. V., & Pérez, H. R. (2008). *Como nos Juzgan los Analistas: La Valoración de Bancos por Suma de Partes [How Analysts Judge us: Sum of Parts Bank Valuation]*. Retrieved December 9, 2011, from http://openmultimedia.ie.edu/OpenProducts/Analistas/Analistas/bsch.pdf

Gross, S. (2007). *Banks and Shareholder Value: An Overview of Bank Valuation and Empirical Evidence on Shareholder Value for Banks.* Frankfurt am Main: Druck und Verlagshaus (DUV).

Lo, K., & Lys, T. (2000). The Ohlson Model: Contribution to Valuation Theory, Limitations, and Empirical Applications. *Journal of Accounting Auditing and Finance*, *15*(3), 337-367.

Morales, J. I., & Martínez, J. (2006). *Análisis y Valoración Sectorial [Sectorial Research and Valuation]*. Barcelona: Editorial Ariel.

Trochim, W. M. (2005). *Research Methods: The Concise Knowledge Base.* Mason, Ohio: Atomic Dog. Cengage Learning.