Determinants of Capital Structure: A Comparison between Industrial and Consumer Sectors in China

Yang Ying, Mohamed Albaity and Fauzi Zainir*

ABSTRACT

Manuscript type: Research paper
Research aims: This paper examines the effects of firm's financial, macroeconomic, and human resource variables in determining the capital structure decisions of firms in the industrial and consumer sectors of China. It also examines the differences between the total debt and long term debt of these two sectors.
Design/ Methodology/ Approach: This study analyses data from Chinese A-share firms of the consumer and industrial sectors listed in the Shanghai and Shenzen stock market exchange from the year 2008 to 2013. Dynamic panel data and the system Generalized Method of the Moments (system GMM) were employed to examine the speed of adjustment and the relationship between firm's financial, macroeconomic, and human resource variables with two proxies of capital structure namely: total debt and long term debt.
Research findings: The results indicate that the adjustment speed of capital structure decision, for both the total debt and long term debt are faster in consumer firms than they are in industrial firms. The long term debt of industrial firms is insignificantly influenced by the firm's financial variables except for firm's size. In consumer firms, it is noted that firm's financial variables play an important role in explaining the leverage variations. The results also indicate that macroeconomic factors are not significant determinants of capital

* Corresponding author: Fauzi Zainir is a Senior Lecturer at the Department of Finance and Banking, Faculty of Business and Accountancy, University of Malaya, Lembah Pantai, 50603 Kuala Lumpur, Malaysia. Email: sfauzi@um.edu.my.
Yang Ying is currently pursuing her PhD at the Institute of Postgraduate Studies, University of Malaya, Lembah Pantai, 50603 Kuala Lumpur, Malaysia. Email: fatimahyang@163.com.
Mohamed Albaity is an Assistant Professor at the Department of Finance and Economics, College of Business Administration, University of Sharjah, United Arab Emirates. Email: malbaity@sharjah.ac.ae.

structure decisions, especially for industrial firms. In addition, employment size and employment in industry have significant positive impact on total debt in consumer firms while employment size and employment productivity have a negative influence on the long term debt in industrial firms. Lastly, there is a significant difference between consumer firms and industrial firms, in term of the type of debt they carry.

Theoretical contributions/ Originality: This study expands on previous work done on indirect effects of sectorial and industry level factors on the relationship between leverage and firm's specific determinants of capital structure, in developing economies. It extends the applicability of capital structure theories that are highly dependent on the types of leverage despite sector behavioural issues.

Practitioner/ Policy implications: This paper provides insights on the variables which explain the level and types of leverage of Chinese firms in both the consumer and industrial sectors.

Research limitations/ Implications: Future studies should consider other proxies for capital structures such as market value of total, long and short term debts. Future studies should also investigate firms in other sectors.

Keyword: Adjustment Speed, China, Consumer Firms, Dynamic Capital Structure, Industrial Firms
JEL: G00, G32, G39

1. Introduction

It is widely known that sector classification has an important effect on capital structure decisions (e.g., Harris & Raviv, 1991; Titman & Wessels, 1988; Drobetza, Gounopoulos, Merikas, & Schroder, 2013). However, studies routinely control sector-specific effects by using dummy variables instead of examining how different sectors have different effects on the firm's financial behaviour. This study examines the determinants of capital structure decision of firms in both the consumer and industrial sectors in China. It also examines whether there are any differences in the capital structure determinants between firms in these two sectors. This question will be addressed by incorporating the firm's financial, macroeconomic and human resource factors via the use of the dynamic panel-data and the system Generalized Method of Movement (system GMM). By formulating a dynamic capital structure, this study examines both the determinants and the adjustment speed of dynamic capital structure of firms in the consumer and industrial sectors. For

the purpose of this study, data from Chinese firms which date back to 2008-2013, are used.

China is the largest developing country. According to the World Bank (2016), China's GDP had increased from USD1.6 trillion in 2000 to USD10.87 trillion in 2015. One of the important engines behind China's economic growth and development is the growth of its listed firms (Bryson, Forth, & Zhou, 2014). The total assets of firms in the consumer sector had grown from USD1.4 trillion in 2008 to almost USD3 trillion in 2013. Whereas, the total assets of firms in the industrial sector had increased from USD1.4 trillion in 2008 to USD3.16 trillion in 2013.

To establish a more favourable and fairer economic environment for firms, China had implemented a series of reform policies. One of the reforms noted is the implementation of the Corporate Income Tax Law on 1 January 2008, introduced as a means to unify the corporate income tax regime between foreign investment firms and domestic firms. Li, Wang, Cheung, and Jiang (2011) note that the tax reform exerts an important influence on the financial behaviour of both domestic and foreign firms, in particular, their financial strategies of investment and capital structure. In another study, An (2012) analysed the effect of the reform on capital structure decision of foreign firms. He finds that foreign firms in China try to increase the efficiency of their capital structure by raising firms' debts, under the new tax law.

Another reform is the second split share structure reform, which was implemented at the end of 2007. Recent studies report that this reform has a significant influence on firms' financial behaviours (Yu & Xu, 2010; Yu, 2013). The reform also exerts positive effects on financial markets (Beltratti, Bortholotti, & Caccavaio, 2012) and agency problems (Tseng, 2012). This is noted by Liu and Tian (2012) who assert that there is reduction in firms' use of excess debt and inter-corporate loans after the implementation of the reform.

In their observations of Chinese firms, Huang and Song (2006) note that there are some characteristics which differentiate them from other firms in developed and developing markets. First, in the case of China, the state is the controlling shareholder of most listed firms, while management shareholdings are quite low. Second, unlike the US and many other countries where all firms are subjected to the same income tax scheme, Chinese firms are subjected to different income tax rates, based on the nature of their ownership and the location of their operations. Third, Chinese listed firms have quite low leverage,

and the book ratio of their leverage measure is much higher than the market ratio.

Past studies show that differences in financial structure exist across large and small firms (Titman & Wessels, 1988; Chittenden, Hall, & Hutchinson, 1996; Demirgüç-Kunt, & Maksimovic, 1999; Voulgaris, Asteriou, & Agiomirgianakis, 2004; Beck, Demirgüç-Kunt, & Maksimovic, 2008; Bas, Muradoglu, & Phylaktis, 2009). This interdependence between firm size and industry with financial structure is also highlighted by Pettit and Singer (1985) and Scherr and Hulburt (2001). Although the variation in capital structure is attributable to firm size and industry classification, Das and Roy (2007) argue that this interdependence is mainly driven by the nature of the industry.

Most prior studies have concentrated on the target debt ratio and adjustment speed across firms but little attention has been paid to across sectors. This gap is highlighted by MacKay and Phillips (2005) who stress on the importance of the industry and its effect on the financial structures of each firm, at the intra-industry level. In other words, a firm's financial structure is dependent on the firm's industry or sector. Elsas and Florysiak (2011) grouped firms based on industry classifications and find heterogeneity across industries in the adjustment speed. Their result is based on the US sample and may not be appropriate for emerging markets like China, due to different institutional factors and financial developments.

Based on the argument above, this study aims to examine whether or not capital structure determinants proxied by leverage of firms in the consumer sector differ from those of firms in the industrial sector. Further, this study also examines the adjustment speed of both sectors and whether or not there is a statistically significant difference between the level of total debt when compared to long term debt. The adjustment speed refers to the speed with which the firm adjusts its debt level towards the target debt. In other words, it looks at how long firms would take to reach their optimal debt levels. Firms with positive and below unity values would indicate that they are having target leverage level and therefore, they need to revise their capital structure decision over time.

The results of this study will indicate that consumer and industrial firms have different preferences in the adjustment speed and the determinants of capital structure. Consumer firms have faster adjustment speeds in both the total and long term debts, while industrial firms have a different outcomes, unlike past studies (Guney, Li, & Fairchild, 2011;

Chen & Strange, 2005; Qian, Yao, & Wirjanto, 2009). Further, there is a significant difference of capital structure decision between the two sectors. The most important determinant for consumer firms is that of non-debt tax shield, while in the case of industrial firms, assets growth plays a crucial role in the making of capital decision. In looking at the macroeconomic variables, it is found that inflation plays a negative but small influence on long term debt in consumer firms. Further to that, employment size and employee productivity also have significant and positive effect on total debt in consumer firms. However, employment size and employee productivity are significantly and negatively related to long term debt of industrial firms.

The significance of this study is threefold. First, the study extends the range of specific determinants of capital structure by including human resource variables. Second, it uses recent data sets and appropriate statistical techniques to construct a comprehensive model based on the firm's financial, macroeconomic and human resource variables. Third, it investigates the determinants and dynamic adjustment for both the book value of total and long term debts.

The rest of the paper is organised as follows. Section 2 reviews prior literature on dynamic capital structure and its determinants. Section 3 explains the data and research method. Section 4 presents and discusses the findings. Section 5 brings the paper to a conclusion.

2. Literature Review

2.1 Theories of Capital Structure

Among the theories explaining the capital structure decision by firms include pecking order theory (Myers & Majluf, 1984), trade-off theory (Modigliani & Miller, 1958; 1963), and signalling theory (Ross, 1977).

The pecking order theory suggests that firms tend to rely on internal sources of financing first, before choosing between debt and equity. That is to say, the preference of firms for raising new funds is ordered as internal fund, followed by debt and equity.

The trade-off theory by Modigliani and Miller (1958) indicates that capital structure is unrelated to firm value based on the assumption of a perfect market. This means that firms operate in a market which is free from bankruptcy, taxes, asymmetric information, and agency costs. There is no difference between current profit distribution and future expectation of it. Physical assets are owned by the firms, and

average expected profits are random and investors are not under a fixed expectation about the future profit. Subsequently, Modigliani and Miller (1963) introduced taxes into the theory and find that with corporate tax, firms with debt have higher values than firms without debt. In other words, there is a trade-off between tax benefits and level of debt since higher level of equity financing increases corporate taxes.

Ross' (1977) signalling theory is based on asymmetric information between insiders and outsiders of firms. It argues that financial decisions made by managers signal information about the current condition and prospects of firms to the public. The theory suggests that higher leverage will send positive signals about the prospects of firms to outsiders.

2.2 Dynamic capital structure

Leverage is regarded as a proxy of capital structure (Titman & Wessels, 1988) and it is measured in various ways. This study adopts book total debt and book long term debt to reflect different choices regarding the types of leverage (Huang & Song, 2006; Chen, 2004). Book total debt is the total of all long and short term borrowings. Long term borrowings/ debt includes loans from banks and unsubordinated debt securities with a maturity of more than one year, including the liability component of convertible bonds.

It is observed that studies are increasingly analysing capital structure decision based on dynamic models (Elsas & Florysiak, 2015; Christensen, Flor, Lando, & Miltersen, 2014; Yang, 2013). By incorporating a lagged dependent variable, these studies are able to formulate dynamic capital structures or the adjustment speed. It is found that firms adjust the level of equity and debt to achieve an optimal capital structure (e.g., Qian et al., 2009; Guney et al., 2011; Ebrahim, Girma, Shah, & Williams, 2014). In applying the findings of these studies, two dynamic capital structure proxies are also formulated through the separate use of lagged book value of total debt and lagged book value of long term debt for the purpose of attaining insights into the dynamic adjustment of capital structure.

2.3 Determinants of Capital Structure

Previous studies had focused mainly on the effect of firm's financial variables on capital structure decision. This study extracts a list of "traditional variables" used in prior studies to explain capital structure decision. To further enhance the explanation of capital structure

decisions from more diverse dimensions, this study also includes "new variables" which are deemed to have a reasonable correlation with capital structure decision (e.g., Kale, Ryan, & Wang, 2007; Kale, Ryan, & Wang, 2013; Fan, Titman, & Twite, 2012; Mokhova & Zinecker, 2014).

2.3.1 Firms' Financial Variables

Profitability: Myers and Majluf (1984) presented the pecking order theory which says that firms tend to rely on firstly, internal sources; secondly, debt; and lastly, equity to finance required funds. This means that the preference of firms for raising new funds could be ordered as internal fund-debt-equity. Chen (2004) suggests that in the context of Chinese firms, pecking order theory indicates that firms tend to seek financing from their retained earnings before going to external sources for financing. Accordingly, this would indicate a negative relationship between profitability and leverage. Using a full sample, without identifying sectors, prior studies find that capital structure decisions are negatively related to profitability (Huang & Song, 2006; Qian et al., 2009; Guney et al., 2011; Chang, Chen, & Liao, 2014). Likewise, profitability is negatively related to both book and market values of total debt and short term debt among industrial and construction firms (Rajagopal, 2011; Feidakis & Rovolis, 2007). In the context of this study, the effect of profitability is examined by using earnings before interest and tax to total asset (EBIT/TA). Similar to Booth, Aivazian, Demirgüç-Kunt, and Maksimovic (2001) and Supa (2012), this study also incorporates lagged EBIT/TA into the model to observe the effect of profitability over the dynamics of borrowing of firms in the consumer and industrial sectors of China.

Firm size: It has been noted that the effects of firm size on capital structure are inconsistent or even contradictory. In their study, Frank and Goyal (2009) examined the pecking order theory by looking at a sample of listed firms in the US over the period of 1971-1998. They find that the pecking order theory is better practised in large firms than small firms. However, Titman and Wessels (1988) find that firm size has a negative effect on leverage, because large firms have a greater incentive to obtain equity finance in the market. They note that the trade-off theory tends to indicate a positive relationship between firm size and capital structure. They argue that large firms have more stable profitability, use more technology and are more diversified, and so, have a better

capacity in debt financing (Fama & French, 2005; Margaritis & Psillaki, 2010). Another theory that could explain the link between firm size and leverage is the signalling theory. According to Chen (2004), large firms can disseminate information more easily than small firms and this, in turn, assures creditors of their financial position. In the context of this study, the impact of firm size is observed by using natural logarithm of total assets, in following the works of Lemmon, Roberts, and Zender (2008), Frank and Goyal (2009), and Lemmon and Zender (2010).

Non-debt tax shield: The trade-off theory states that tax plays an important role in capital structure decisions. It has been argued that firms make capital structure decisions by trading off the tax benefits created by the debt and costs of bearing the debt (Kraus & Litzenberger, 1973). DeAngelo and Masulis (1980) point out that firms attempt to raise more debts in their pursuit to benefit from tax shield. At the industry level, manufacturing firms tend to reduce their long term debt consumption as their non-tax debt shield increases (Wald, 1999; Rajagopal, 2011). Conversely, Chang, Lee, and Lee (2009) find that there is a positive association between non-tax debt shields and all types of leverage, that is, long term debt and total debt.

In China, findings of the effect of non-debt tax shield on capital structure have not been consistent. Tong and Green (2005) suggest that there is a positive relationship between non-debt tax shield and capital structure in large Chinese listed firms. However, other studies (Huang & Song, 2006; Qian et al., 2009; Guney et al., 2011) find that these are negatively related. None of these studies had examined the differences among sectors. Considering that amortisation can also create tax shield benefits, this study thus, examines the effect of non-debt tax shield, calculated by depreciations plus amortisation scaled by total assets (Ozkan, 2001; Kouki & Said, 2012) on capital structure, among Chinese firms in two sectors: consumer and industrial.

Growth: Growth is one of the signals indicating the development of firms. Frank and Goyal (2009) find that growth represented by market-to-book ratio of assets has a negative effect on leverage. Based on the modified testing of Shyam-Sunder and Myers (1999), it is suggested that the financial behaviour of high-growth and small firms which frequently issue equity, can be better explained by the pecking order theory. Since high market-to-book ratio of assets implies good market opportunities, firms can obtain funds from the equity market with ease. However,

some studies (Guney et al., 2011; Chang et al. 2014) have examined the growth of book assets and they note that there is a positive relationship between growth of book debt and leverage. In his study, Chen (2004) finds that firms with attractive earnings and growth prospects utilise a greater amount of leverage. This is supported by the bank's willingness to issue longer term debt, which is highly dependent on capital market recognition. In other words, banks give recognition to firms' market capitalisation. The signalling theory can explain the positive relationship between growth opportunities and leverage. Firms with high growth opportunities signal better performance which indicates the firms' ability to service debts. Firms with low growth opportunities reflect their low ability to pay debts to creditors. The signalling theory can also predict that firms which produce or manufacture products rely heavily on tangible assets as compared to service firms which rely on intangible assets (Chen, 2004). Therefore, it can be said that manufacturing firms with more tangible assets are in better position to collateralise their debts than service firms that have intangible assets. In the context of this study, both the market-to-book ratio of assets and the growth of book assets were applied in the appropriate models. This enables the study to observe the impact of market opportunities and assets growth on capital structure.

Dividend: Baskin (1989) states that more equity financing tend to result in more dividend, and consequently, higher taxes on dividend. In this regard, firms tend to raise debt instead of equity. According to the trade-off theory, firms would reserve their capacity of low-risk debt for potential investments by paying less dividend (Fama & French, 2002). However, Chen, Jian, and Xu (2009) postulate that firms in China tend to channel cash flows to shareholders by paying dividend through raising debt from outside. Fama and French (2002) discover that many predictions between debt and dividend could be explained by both the trade-off and pecking order theories. They find that firms pay less dividend so as to reserve their capacity of low-risk debt for potential investment. Moreover, investments financed by debt with less dividend can reduce overinvestment and asset substitution problems. Supporting the signalling theory, Jensen, Solberg, and Zorn (1992) find positive relationship between dividend payment and debt. They argue that dividend payment sends a positive signal to the public as this implies that firms are operating with better financial health. The current study

thus examines the impact of dividend measured by dividend per share, on leverage.

Liquidity: According to Leary and Roberts (2010), firms issuing equity have low leverage and high current ratio. This is because firms tend to reserve debt capacity for future investments, or to avoid the negative results of underinvestment problem that are associated with high leverage. Meanwhile, Guney et al. (2011) observe that low liquidity measured by current ratio, is associated with high leverage. This is confirmed by Omran and Pointon (2009) who investigated the differences in capital structures across industries in Egypt. Three proxies of liquidity: quick ratio, cash from operations, and cash and marketable securities were included. Based on the result, they conclude that these proxies are negatively related to leverage because the higher the firm's debt, the lesser its assets remain. Nevertheless, the fact that a firm employs more assets implies that it can generate more internal inflows. This can then be used to finance its operating and investment activities. Thus, the negative relationship implies that firms finance their own activities through the "pecking order" theory.

2.3.2 Macroeconomic Variables

The influence of the macroeconomic condition on capital structure decision of firms has emerged in recent years and this has attracted the attention of researchers in developed countries. Some studies (e.g., De Jong, Kabir, & Nguyen, 2008; Jõeveer, 2013) state that macroeconomic factors have an influence on the capital structure of firms. Linked to this, Fan et al. (2012) explain that leverage is positively affected by inflation in developed countries because a higher inflation rate can cause greater interest tax shields. In another study (Mokhova & Zinecker, 2014), it is found that in most emerging markets, government debt is positively related to capital structure decision. However, in developed countries, it has a negative influence on firms' capital structure. The current study employs both inflation and government debt to GDP to explain the macroeconomic influence on firms' capital structure.

2.3.3 Human Resources Variables

Previous studies suggest that capital structure and human resource factors are correlated. They state that leverage serves as a bonding

mechanism which affect employee productivity (Koskela & Stenbacka, 2000; Kale et al., 2007; Bae, Kang, & Wang, 2011; Katagiri, 2014). Nonetheless, Koskela and Stenbacka (2000) find that more leverage increases effective labour cost which includes wage rate as well as firm leverage rate and interest rate. This means that debt leverage is closely related to employee productivity, since the greater the effective labour cost, the higher the employee productivity.

In another study, Bae et al. (2011) find that firms with positive Employee Treatment Index Score (ETIS) have higher returns on assets. In particular, they find that the mean and median of book debt ratios are even higher than that of market debt ratios in firms with positive ETIS. This indicates that better employee treatment can support higher debt leverage. In other words, higher profitability obtained from higher employee productivity offers stronger cash flow for debt payment. This means that employee productivity acts as the disciplining mechanism for firms in obtaining high leverage.

Others like Koskela and Stenbacka (2000), Kale et al. (2007), Bae et al. (2011), and Katagiri (2014) find that when the effects of the disciplining mechanism of employee productivity on debt are reduced, outside employment opportunities increase. This is because employees can withdraw from working for high leveraged firms when new jobs are readily accessible (Kale et al., 2007; 2013). However, there is no study which analysed whether capital structure decision is inversely influenced by employee productivity and outside employment size. The current study analyses the effect of employee productivity which is measured by total sales plus inventories to total number of employees. Outside employment size is measured by employment in industry and this is referred from the annual report of the World Bank (Oyer, 2004; Parrino, 1997; Rajgopal, Shevlin, & Zamora, 2006).

Meanwhile, according to Sapienza (2004), capital structure of firms is affected by labour force, since banks owned by the state prefer to offer credit to firms with a large labour force. Beck et al. (2008) also find that firm size measured by the number of employees use more external financial source. Although the World Bank (2016) asserts that China has the biggest population and employment size in the world, there is no study to ascertain the relationship between capital structure and employment size in China. It is thus necessary to bridge this gap and analyse the relationship between capital structure and human resource variables. Filling in the gap, this study measures employment

size by using the logarithm of total number of employees to explain the relationship. Table 1 summarises the variables used in this paper and their measurements.

Table 1: Variable Definition and Formulas

	Variables	Formulas	Source
Dependent variables	Leverage	Total debt/ Total book assets Long term debt/ Total book assets	Frank and Goyal (2009); Titman and Wessels (1988)
Firm's financial variables	Profitability: Current profitability	EBIT/ Total assets	Chen and Strange (2005); Qian et al. (2009)
	Lagged profitability	$(\text{EBIT/ Total assets})_{t-1}$	
	Firm size	Natural log (Total assets)	Frank and Goyal (2009)
	Growth: Assets growth	$\text{Total assets/ Total assets}_{t-1}$	Frank and Goyal (2009); Zheng and Zhu (2013)
	Market growth opportunities	Market equity + Book total debt/ Total assets	
	Non-debt tax shield	Depreciations + Amortisation/ Total assets	Ozkan (2001); Kouki and Said (2012)
	Dividend per share	Total amount of dividend paid to shareholders/ Number of shares	Liu and Hu (2005)

	Liquidity:		
	Current ratio	Current assets/ Current debt	Leary and Roberts (2010);
	Quick ratio	Current assets – Inventories/ Current debt	Pessarossi and Weill (2013)
	Cash & marketable securities	Natural log (Cash & marketable securities)	
	Cash from operation	Natural log (Cash from operation)	
Macroeconomic variables	Inflation	% Change in consumer price index	Frank and Goyal (2009)
	Government debt to GDP	Government debt/ GDP	Mokhova and Zinecker (2014)
Human resource variables	Employment size	Natural log (Total number of employee)	Dachraoui and Dionne (1999)
	Employee productivity	Total sales + Inventories/ Number of employee	Koskela and Stenbacka (2000)
	Employment in industry	Employment in industry/ Total employment	Kale et al. (2007)

3. Data and Methodology

The current study focuses on data collected over a six year period (2008-2013) from Chinese A-share listed firms in the consumer and industrial sectors trading on the Shanghai or Shenzhen stock exchange, which quote prices in the local currency. Specific data of these firms were obtained from the Bloomberg database, whereas macroeconomic and human resource data were obtained from the database of the World Bank. Only firms with complete observations throughout the six years

were included in the sample. The consumer sector consists of 233 firms which accounted for 1,398 observations, while the industrial sector consists of 214 firms which yielded 1,284 observations. These two sectors account for 65 per cent of the total listed firms and they represent 50 per cent of the total assets of the A-share listed firms in the Shanghai and Shenzen stock market exchanges.

Panel data were used to eliminate the problem of multicollinearity and increase the sample size. This is to avoid problems with smaller degrees of freedom. In order to prevent model mis-specification, the autoregressive process (AR(1)) of lag one of the leverage (Devereux & Schiantarelli, 1990) was included. Thus, one-period lagged leverage was included to deter model mis-specification and to test the adjustment speed of the leverage. This specification is displayed below as Model 1:

$$Y_{it} = \alpha_0 + \alpha_1 Y_{i,t-1} + \sum_{f=1} \gamma f X_{f,\,it} + \eta_t + \varepsilon_{it} \quad (1)$$

where, Y_{it} is defined as leverage, while *i* and *t* are firm *i* and year *t*; α_0 is the constant; γf are unknown parameters; α_1 reports unknown parameters; $Y_{i,t-1}$ is leverage of firm *i* in year *t-1* which represents the adjustment speed of the level of leverage; $X_{f,it}$ presents the firm's financial variables including current profitability, lagged profitability, firm size, assets growth, market growth opportunities, non-debt tax shield, dividend per share, current ratio, quick ratio, cash and marketable securities, and cash from operation; and η_t are time-specific effects. The time-varying disturbance term ε_{it} is assumed to be serially uncorrelated with mean zero and variance σ^2.

The macroeconomic determinants, including inflation and government debt to GDP, are included into Model 2, written as follows:

$$Y_{it} = \alpha_0 + \alpha_1 Y_{i,t-1} + \sum_{f=1} \gamma f X_{f,\,it} + \sum_{j=1} \gamma j M_{j,\,it} + \eta_t + \varepsilon_{it} \quad (2)$$

where $M_{j,it}$ is a measure of macroeconomic variables; γj and γf are unknown parameters. Model 3 continually controls for the human resource factors including employment size, employee productivity and employment in industry, and it is written as:

$$Y_{it} = \alpha_0 + \alpha_1 Y_{i,t-1} + \sum_{f=1} \gamma f X_{f,\,it} + \sum_{j=1} \gamma j M_{j,\,it} + \sum_{l=1} \gamma l H_{l,\,it} + \eta_t + \varepsilon_{it} \quad (3)$$

where *H* is vector of human resource factors and γl are unknown parameters.

Since the global financial crisis is part of the period under study, a dummy variable was used to test whether the crisis has any impact on the efficiency of the model. In addition, to check the robustness of the model across time, a dummy variable controlling the crisis was tested so as to verify the effect of the crisis on the sample. The dummy was included as one of the independent variables in all the models.

The data structure has two dimensions: time and cross section. Since this study focuses on specific industries rather than the whole market, the industry effect is not controlled for, but the time factor varies across the cross sectional elements. In other words, each firm in the same industry varies across time. Therefore, this study controls for year-specific effects so as to avoid the influence of time differences (e.g., Harris & Raviv, 1991; Antoniou et al., 2008; Frank & Goyal, 2009; Ebrahim et al., 2014). As panel data is a combination of both time and cross sectional elements, it is necessary to control for the variation in time across the cross sections of the data.

There are different techniques to estimate panel data models. This study employed the GMM estimator to control endogeneity (e.g., Flannery & Hankins, 2013; Ebrahim et al., 2014). System GMM has been used by Ozkan (2001), Antoniou et al. (2008), and Miquel and Pindado (2001) to analyse the adjustment speed. They note that system GMM can be used in line with robust function to eliminate problems with standard error. In addition, system GMM controls for individual heterogeneity and variations among firms. Following Antoniou et al. (2008) and Ozkan (2001), this study also used the partial adjustment model to analyse the adjustment speed.

However, Antoniou et al. (2008) also indicate that despite being superior to other techniques, one shortcoming faced by system GMM is the optimal selection of the instruments. For example, system GMM might end up generating too many instruments that could cause the model to be bias and the results to be unreliable. To overcome this, this study applied Hansen J-statistic to determine the validity of the over-identifying restrictions noted in the GMM model. Arellano-Bond's autocorrelation test was used to test the null hypotheses of the first and second order serial correlation in the first differenced error terms. The existence of autocorrelation in the error terms would cause the standard error to be either over- or under-estimated thereby, leading to wrong inferences. The results of the tests are reported in Tables 4 and 5 and discussed in section 4 below.

4. Result and Discussion

4.1 Descriptive Statistics

Table 2 reports on the descriptive statistics for all variables. The results are Winsorised at the lower and upper one percentile in order to eradicate errors in the data and to mitigate the influence of outliers. On average, the long term debt of industrial firms is substantially higher than those in the consumer sector, while total debt of the two sectors is almost similar, at 49 per cent and 50 per cent respectively. The profitability, firm size, assets growth, cash and marketable securities, current ratio, quick ratio, and employee productivity of firms in the consumer sector are lower than those in the industrial sector. However, non-debt tax shield, market growth opportunity, dividend per share, cash from operation, and employment size of firms in the consumer sector are higher than those of the industrial sector.

Table 2: Descriptive Statistics

					Percentiles			
	Obs.	Mean	SD	Median	25th	75th	Min	Max
Consumer sector:								
Total debt	1398	0.50	0.22	0.50	0.34	0.64	0.05	2.63
Total debt$_{t-1}$	1397	0.50	0.22	0.50	0.34	0.64	0.05	2.63
Long-term debt	1398	0.07	0.09	0.04	0.01	0.11	-	0.63
Long-term debt$_{t-1}$	1397	0.07	0.09	0.04	0.01	0.11	-	0.63
Profitability $_{t}$ (m$)	1398	513	1825	141	46.19	358	-8034	29419
Profitability $_{t-1}$ (m$)	1397	431	1637	123	37.98	310	-8034	29419
Firm size	1398	21.9	1.23	21.81	21.05	22.60	18.17	26.65
Non-debt tax shield	1398	0.03	0.02	0.03	0.02	0.04	0.00	0.12
Assets growth	1398	0.22	1.17	0.10	0.01	0.22	-0.69	36.14
Market growth opportunity	1398	2.27	1.54	1.77	1.32	2.60	0.70	12.61
Dividend per share	1398	0.11	0.27	0.05	-	0.10	-	5.84
Cash & Market securities	1398	19.9	1.50	19.95	19.09	20.8	13.70	25.22
Current ratio	1398	1.50	1.12	1.24	0.89	1.78	0.04	12.14
Quick ratio	1398	1.05	1.02	0.80	0.49	1.27	0.04	12.10

Cash from operation (m$)	1398	655	2536	130. 8	19.17	383.2	-5686.7	35832
Inflation	1398	4.22	3.31	4.32	1.70	7.76	-0.61	7.81
Government debt to GDP	1398	23.8	6.11	22.80	17.70	28.80	17.00	33.50
Employment size	1398	7.94	1.43	8.01	7.06	8.88	1.10	11.29
Employee productivity	1398	13.9	1.18	13.74	13.05	14.43	9.79	19.85
Employment in industry	1398	27.8	1.13	27.81	27.20	28.70	25.90	29.50
Total assets (m$)	1398	9133	682	2960	138000	649000	7.8	34700000
Industrial sector:								
Total debt	1284	0.49	0.20	0.49	0.34	0.65	0.03	0.96
Total debt$_{t-1}$	1283	0.49	0.20	0.49	0.34	0.65	0.03	0.96
Long-term debt	1284	0.09	0.11	0.05	0.02	0.14	-	0.62
Long-term debt$_{t-1}$	1283	0.09	0.11	0.05	0.02	0.14	-	0.62
Profitability $_{t}$ (m$)	1284	563	1546	146	52.7	456.3	-431.8	16949
Profitability $_{t-1}$ (m$)	1284	498	1384	131	49.4	405.2	-664.4	16190
Firm size	1284	22.1	1.21	22.01	21.33	22.83	19.24	27.17
Non-debt tax shield	1284	0.02	0.01	0.02	0.01	0.03	-	0.09
Assets growth	1284	0.26	1.40	0.12	0.03	0.25	-0.42	45.83
Market growth opportunity	1284	2.07	1.44	1.60	1.23	2.38	0.64	14.73
Dividend per share	1284	0.08	0.09	0.05	-	0.10	-	0.65
Cash & Market securities	1284	20.2	1.28	20.17	19.39	20.92	15.40	25.05
Current ratio	1284	1.89	1.90	1.36	1.09	1.92	0.06	23.22
Quick ratio	1284	1.42	1.73	0.99	0.66	1.45	0.06	19.51
Cash from operation (m$)	1284	264	1589	90.3	-15.2	342.5	-18290	16943.4
Inflation	1284	4.22	3.31	4.32	1.70	7.76	-0.61	7.81
Government debt to GDP	1284	23.8	6.11	22.80	17.70	28.70	17.00	33.50
Employment size	1284	7.72	1.23	7.72	6.96	8.43	2.89	12.59
Employee productivity	1284	14.0	1.06	13.83	13.32	14.42	8.76	19.86
Employment in industry	1284	27.8	1.13	27.81	27.20	28.70	25.90	29.50
Total assets (m$)	1284	10444	934	3607	183000	8.20	226	628029

Table 3 shows the average debt ratios reported based on yearly data (see also Figure 1). Statistics indicate that consumer firms exhibit a downward trend in their use of total debt while industrial firms demonstrate an upward trend in their use of total debt. Conversely, the long term debt of both sectors present an upward trend, suggesting that firms are increasingly using more long term debt in recent years. This could be due to the fact that capital markets are experiencing more development as compared to past decades, thereby, enabling firms to access more long term debt finance (Peng & Simone, 2014). Table 3 presents results extracted from the t-test which show the significant difference between total debt and long term debt of the two sectors over the sample period of 2008-2013. Clearly, the results indicate that both long term debt and total debt are significantly different in both sectors across time.

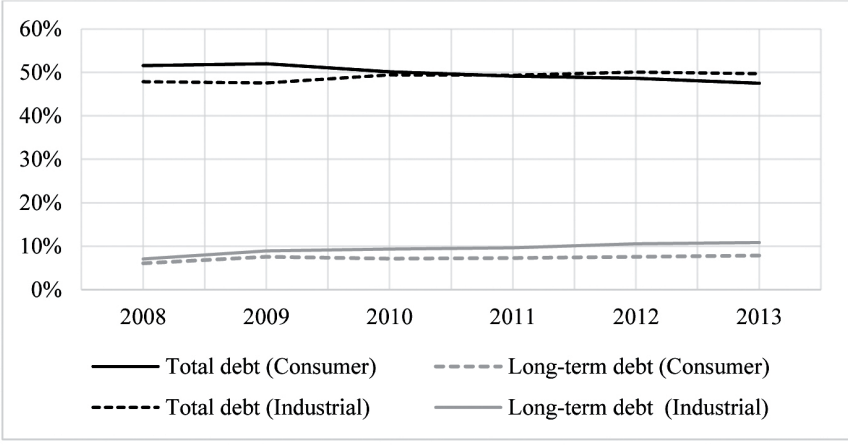

Figure 1: Mean Debt Ratios Over the Sample Period

Table 3: Average Debt Ratios by Year and t-Test for Mean Difference

	Consumer Sector			Industrial Sector		
	Total debt	Long-term debt	t-test	Total debt	Long-term debt	t-test
2008	.516	.061	25.8***	.479	.071	27.4***
2009	.520	.075	24.4***	.475	.089	25.1***
2010	.501	.071	28.8***	.494	.093	25.5***
2011	.491	.073	30.8***	.494	.096	25.1***
2012	.486	.076	30.5***	.500	.106	24.8***
2013	.475	.078	29.4***	.497	.109	24.1***

Note: *** indicates significance at the 1% level.

4.2 Standard Capital Structure Regression

This study tests different model specifications in evaluating the relative importance of firm's financial variables, macroeconomic variables and human resource variables on capital structure decision which is proxied by book value of long term debt and total debt. The results reported in Tables 4 and 5 used three model specifications: Model 1 (M1) reports the regression results for firm's financial variables, Model 2 (M2) presents the results by incorporating macroeconomic factors into M1, and Model 3 (M3) provides the results of all factors including firm's financial, macroeconomic, and human resource variables.

Tables 4 and 5 present all the regression results and the tests for over-identification and autocorrelation problems in the models. Results show that all the model specifications passed the Hansen J-statistics and Arellano-Bond autocorrelation tests. Therefore, the number of independent variables in the model does not cause any model mis-specification. It is not uncommon in studies of capital structure to use many independent variables in a single model. For example, Antoniou et al. (2008) included 18 independent variables, Kayo and Kimura (2011) included 17 independent variables, and Frank and Goyal (2009) included 25 independent variables.

Table 4: System GMM Regression of Total Debt in 2008-2013

	Consumer Sector			Industrial Sector		
	(M1)	(M2)	(M3)	(M1)	(M2)	(M3)
Total debt $_{t-1}$	0.568***	0.568***	0.537***	0.768***	0.768***	0.751***
	(9.85)	(9.85)	(8.59)	(17.84)	(17.84)	(17.00)
Profitability $_{t}$	-0.023***	-0.023***	-0.029***	0.001	0.001	0.007
	(-3.11)	(-3.11)	(-2.99)	(0.14)	(0.14)	(0.72)
Profitability $_{t-1}$	0.002	0.002	0.002	-0.016**	-0.016**	-0.021***
	(0.27)	(0.27)	(0.26)	(-2.11)	(-2.11)	(-2.91)
Firm size	0.041***	0.041***	0.020	0.053**	0.053**	0.038*
	(2.90)	(2.90)	(1.00)	(2.49)	(2.49)	(1.88)
Non-debt tax shield	-1.044**	-1.044**	-0.824**	-0.775	-0.775	-0.845
	(-2.06)	(-2.06)	(-1.97)	(-1.37)	(-1.37)	(-1.53)
Assets growth	-0.017	-0.017	-0.011	0.078***	0.078***	0.059**
	(-0.89)	(-0.89)	(-0.65)	(2.8)	(2.8)	(2.49)
Market growth opportunity	-0.003	-0.003	0.000	-0.002	-0.002	-0.003
	(-0.58)	(-0.58)	(-0.05)	(-0.42)	(-0.42)	(-0.73)
Dividend per share	-0.010	-0.010	-0.010	-0.027	-0.027	-0.060
	(-1.38)	(-1.38)	(-1.60)	(-0.61)	(-0.61)	(-1.20)
Cash & marketable securities	0.013	0.013	0.012	-0.015	-0.015	-0.014
	(1.00)	(1.00)	(1.11)	(-1.23)	(-1.23)	(-1.42)
Current ratio	-0.028	-0.028	-0.039	-0.010	-0.010	-0.014
	(-1.00)	(-1.00)	(-1.62)	(-1.07)	(-1.07)	(-1.43)
Quick ratio	-0.016	-0.016	-0.002	0.007	0.007	0.011
	(-0.54)	(-0.54)	(-0.07)	(0.77)	(0.77)	(1.14)
Cash from operation	-0.012*	-0.012*	-0.010*	-0.004	-0.004	-0.003
	(-1.86)	(-1.86)	(-1.74)	(-0.70)	(-0.70)	(-0.51)
Inflation		0.000	-0.001		0.000	0.000
		(-0.26)	(-0.82)		(0.20)	(0.23)
Government debt to GDP		-0.001	-0.001		-0.001	-0.001
		(-1.14)	(-0.97)		(-1.48)	(-0.94)
Employment size			0.031*			0.007
			(1.76)			(0.69)
Employee productivity			0.023			0.014
			(1.26)			(1.26)
Employment in industry			0.004*			-0.003
			(1.66)			(-1.03)
Number of firms	233	233	233	214	214	214
Number of instruments	167	167	167	167	167	167
Observations	819	819	819	702	702	702
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Autocorrelation1	0.004	0.004	0.002	0.000	0.000	0.000
Autocorrelaiton2	0.208	0.208	0.246	0.492	0.492	0.447
Hansen *J-statistic* (*p*)	0.434	0.434	0.440	0.371	0.371	0.378

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. t-statistics in parentheses.

Table 5: System GMM Regression of Long-Term Debt in 2008-2013

	Consumer Sector			Industrial Sector		
	(M1)	(M2)	(M3)	(M1)	(M2)	(M3)
Long-term debt $_{t-1}$	0.634***	0.634***	0.618***	0.777***	0.777***	0.699***
	(11.16)	(11.16)	(11.63)	(16.18)	(16.18)	(12.93)
Profitability $_{t}$	-0.006	-0.006	-0.003	-0.007	-0.007	-0.007
	(-0.92)	(-0.92)	(-0.42)	(-0.96)	(-0.96)	(-1.03)
Profitability $_{t-1}$	0.005	0.005	0.004	0.005	0.005	0.004
	(1.01)	(1.01)	(0.89)	(0.68)	(0.68)	(0.72)
Firm size	0.028***	0.028***	0.0355***	0.025*	0.025*	0.064***
	(3.67)	(3.67)	(3.43)	(1.99)	(1.99)	(3.70)
Non-debt tax shield	0.464**	0.464**	0.375*	-0.769	-0.769	-0.689
	(1.98)	(1.98)	(1.66)	(-1.51)	(-1.51)	(-1.33)
Assets growth	0.012***	0.012***	0.011***	0.025	0.025	0.016
	(2.70)	(2.70)	(2.59)	(1.38)	(1.38)	(1.00)
Market growth opportunity	-0.001	-0.001	-0.002	-0.003	-0.003	0.001
	(-0.39)	(-0.39)	(-0.85)	(-1.22)	(-1.22)	(-0.22)
Dividend per share	-0.009	-0.009	-0.010	-0.001	-0.001	-0.012
	(-0.86)	(-0.86)	(-1.24)	(-0.02)	(-0.02)	(-0.29)
Cash & marketable securities	-0.010**	-0.010**	-0.006	-0.013	-0.013	-0.012
	(-1.92)	(-1.92)	(-0.82)	(-1.58)	(-1.58)	(-1.53)
Current ratio	-0.016	-0.016	-0.011	0.006	0.006	0.013
	(-1.20)	(-1.20)	(-1.09)	(0.85)	(0.85)	(1.42)
Quick ratio	0.017	0.017	0.008	-0.004	-0.004	-0.013
	(1.15)	(1.15)	(0.68)	(-0.40)	(-0.40)	(-1.22)
Cash from operation	-0.005*	-0.005*	-0.007**	-0.002	-0.002	-0.004
	(-1.78)	(-1.78)	(-2.10)	(-0.50)	(-0.50)	(-1.11)
Inflation		-0.002**	-0.002**		-0.002	-0.002
		(-2.26)	(-2.14)		(-1.85)	(-1.52)
Government debt to GDP		0.000	0.000		-0.001	0.000
		(-0.04)	(-0.09)		(-1.05)	(-1.04)
Employment size			-0.014			-0.028***
			(-1.42)			(-2.65)
Employee productivity			-0.010			-0.030***
			(-1.09)			(-2.93)
Employment in industry			0.001			0.001
			(0.53)			(0.39)
Number of firms	233	233	233	214	214	214
Number of instruments	167	167	167	167	167	167
Observations	819	819	819	702	702	702
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
m_1-*statistic*(*p*)	0.001	0.001	0.001	0.003	0.003	0.005
m_2-*statistic*(*p*)	0.578	0.578	0.625	0.815	0.815	0.838
Hansen *J-statistic* (*p*)	0.387	0.387	0.484	0.391	0.391	0.439

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. t-statistics in parentheses.

4.2.1 Adjustment Speed

This study examines adjustment speeds and determinants of total debt of the dynamic capital structure. Table 4 provides the comparative results of total debt for the two sectors. The results of the coefficient of lagged total debt in the first row of Table 4 indicate that adjustment speeds of total debt of firms in the consumer and industrial sectors are from 43.2 per cent to 46.3 per cent and from 23.2 per cent to 24.9 per cent, respectively. This implies that consumer firms are able to adjust faster to shocks than industrial firms, with half-life for consumer firms, ranging between 1.1 and 1.2 years and between 2.4 and 2.6 years for industrial firms.[1] This indication suggests that both sectors have leverage targets but they respond to the deviation of leverages from the targets, in significantly, different speeds.

The first row of Table 5 displays the adjustment speed for the long term debt of firms in both sectors. The results suggest that the adjustment speed of firms in the consumer sector ranges between 36.6 per cent and 38.2 per cent. This implies that the adjustment speed does not change dramatically as the model specifications change. In addition, firms in the industrial sector carry the adjustment speed of between 22.3 and 30.1 per cent across the three model specifications. The half-life for that adjustment to occur is between 1.4 and 1.5 years for consumer firms and between 1.9 and 2.8 years for industrial firms. This implies that consumer firms have a higher adjustment speed than industrial firms, in both total and long term debts.

The results indicate that firms in China have a higher adjustment speed than those in developed countries. For example, Lemmon et al. (2008), Frank and Goyal (2009) and Faulkender, Flannery, Hankins, and Smith (2012) find the adjustment speed of firms in the US to range between 23 per cent and 27 per cent and in six of the G-7 countries, below 30 per cent (Antoniou, Guney, & Paudyal, 2002). Similarly, in developing countries, Ebrahim et al. (2014) find a lower adjustment speed for Malaysia, at 28 per cent. In China, Qian et al. (2009) note a lower adjustment speed of 18.5 per cent, considered as very slow when compared to Ying, Albaity, and Hassan (2015) who find the adjustment speed to be between 36 per cent and 54 per cent. The current study reports on results which appear to be closer to Ying et al. (2015). When compared to Qian et al. (2009), the results of this study show that there

[1] The half-life is calculated approximately as $\log(0.5)/\log(\lambda)$ and λ denotes the mean of coefficients of the lagged debt ratios in M1, M2,and M3.

is improvement in covering the gap between the optimal level of debt and the actual debt.

One reason for the difference noted in the adjustment speed of firms in the consumer and industrial sectors is that consumer firms produce day to day products (for example, household durables, leisure equipment & products, textiles, apparel etc.) whereas industrial firms consist of heavy machinery producers (for example, aerospace & defence, building products, construction & engineering, electrical equipment, machinery etc.). This means that consumer firms produce short term products while industrial firms produce long term products. As industrial firms take a longer time to manufacture products for sale, they tend to take a longer time in servicing their debts too.

Another reason offered by Hovakimian, Opler, and Titman (2001) and Guney et al. (2011) is that slower adjustment speed occurs when the adjustment cost is high. The adjustment speed is fast if the adjustment cost is low. Guney et al. (2011) explain that highly profitable and less risky firms adjust their leverage level faster when compared to less profitable and riskier firms for as Chen (2004) asserts, long term debt is riskier than short term debt. Table 3 shows that the magnitude of long term debt in industrial firms is bigger than consumer firms. Therefore, consumer firms are relatively less risky than industrial firms, hence, the adjustment cost is lower. This might explain the faster adjustment of consumer firms when compared to industrial firms.

Summing up, the adjustment speed supports the trade-off theory whereby, both consumer and industrial firms have a targeted level of debt and managers adjust their firms' level of debt to match the targeted level. The positive and below unity value indicate that both firms, regardless of the proxy of debt, revise the capital structure over time.

4.2.2 Firm's Financial Variables

Profitability and lagged profitability: With regards to the determinants in capital structure decision, the current study finds that current profitability is negatively related to total debt while lagged profitability has no significant impact on total debt in consumer firms. The negative impact is similar to findings reported by studies of listed firms regardless of sectors (Huang & Song, 2006; Qian et al., 2009; Guney et al., 2011; Chang et al., 2014). The reason is that firms are given more freedom to find other sources of funding as a result of economic reforms. One interpretation is that firms' access to funding is not restricted to internal

sources only after 2008. In contrast, they could raise debts with reference to other characteristics of firms such as firm size. This might be one of the significant effects resulting from the split share structure reform because currently, firms have a greater degree of financial freedom. After the reform of 2008, they need not rely on internal funds alone. However, for industrial firms, the result shows that total debt is negatively affected by lagged profitability while current profitability has no significant effect on total debt.

The findings indicate that profitability plays a role in capital structure decision of firms in both consumer and industrial sectors. The findings are consistent with Chen (2004) who examined the relationship between profitability and long term debt and total debt and finds their relationship to be negative and significant. Similarly, Titman and Wessels (1988) used lagged profitability against different types of debt proxies and find their relationships to be negatively related and significant. Based on the above results, it is deduced that current profitability is negatively related and significant in consumer firms whereas lagged profitability is negatively related and significant in industrial firms but only for total debt proxy. These findings thus, support the pecking order theory.

Firm size: The impact of firm size is statistically positive in both the consumer and industrial sectors, suggesting that firm size has a positive impact on capital structure decision across sectors. This is in line with Byoun (2008) who indicates that larger firms are generally transparent and tend to have larger debt levels and so, can issue larger amounts of debts due to lower cost of issuing debts. Antoniou et al. (2002) and Fama and French (2005) also find positive relationship between firm size and leverage. However, the results are contrary to Titman and Wessels (1988) and Friend and Lang (1988) who suggest that large firms are more diversified and so, can reduce bankruptcy risk or raise lesser debts because they have easy access to equity finance.

The findings of this study show that the relationship between firm size and debts (both total and long term) is positive thereby, supporting the explanation that larger firms are expected to use better technology, be more diversified and better managed because larger firms have stable cash flow, and enjoy economies of scale in monitoring top management (Himmelberg, Hubbard, & Palia, 1999). Therefore, the results of this study support the application of both the trade-off theory as well as signalling theory, for both sectors.

Non-debt tax shield: The effect of non-debt tax shield on capital structure is only significant in consumer firms but not for industrial firms. The results show that non-debt tax shield has statistically negative effect on total debt of firms in consumer sector, similar to Huang and Song (2006), Qian et al. (2009), and Guney et al. (2011). In contrast, non-debt tax shield is found to have a positive impact on long term debt of consumer firms. This is contrary to the results of Huang and Song (2006), Qian et al (2009) and Guney et al (2011). However, it is consistent with Bradley et al. (1984), Antoniou et al. (2008), Titman and Wessels (1988), and Mao (2003) who find a positive relationship between non-debt tax shield and leverage. According to Antoniou et al. (2008), the positive relationship is linked to a high level of depreciation of non-debt tax shields. High depreciation means that the firm possesses a high level of tangible fixed assets which can help to secure a higher level of debt. This explains why the non-debt tax shield is found to be positive and significant with long term debt but negative with total debt. Specifically, firms tend to raise more long term debt because they are highly beneficial (DeAngelo & Masulis, 1980). In summary, this study finds that the relationship between non-debt tax shield and total debt is negative and significant for consumer firms, a finding which supports the trade-off theory. Likewise, this study also finds that non-debt tax shield is positive and significant with long term debt of consumer firms, thereby, supporting the pecking order theory in consumer firms.

Growth opportunity: The proxies for growth opportunities are assets growth and market growth opportunity. This study finds that assets growth is positively and significantly linked with long term debt for consumer firms, but with total debt in industrial firms. The finding thus supports the signalling theory. This is because assets in accounts can serve as collaterals for debts, hence higher growth in assets could mean higher collaterals for debt financing (Titman & Wessels, 1988; Guney et al., 2011; Chang et al., 2014; Chen, 2004; Ying et al., 2015). In other words, since these firms are in the manufacturing industry, they rely mostly on tangible assets which becomes easier for them to borrow as lenders prefer tangible assets to intangible asset as collaterals (Chen, 2004). In other words, the higher assets growth is, the more leverage a firm is willing to take. From the signalling point of view, firms with high value growth opportunities are recognised by other market players (i.e. investors, creditors and governments) as best earnings firms. Therefore, they can raise more debts. This observation supports Frank

and Goyal (2009) who confirm that capital structure has industry-specific characteristics.

In summary, the proxies for growth opportunities are found to have mixed signs. Assets growth is positive and significant with total debt in industrial firms and with long term debt in consumer firms. In contrast, the relationships between market growth opportunity with total and long term debts in both consumer and industrial firms are negative and not statistically significant.

Dividend: Dividend in all the models across both consumer and industrial sectors is found to be negatively but insignificantly related to total and long term debts. This indicates that dividend payments have no impact on total debt and long term debt in firms of both sectors.

Liquidity: Of the four measurements of liquidity, cash from operation is negatively related to both total debt and long term debt while cash and marketable securities is negatively and significantly related to long term debt in consumer firms. By contrast, this study finds no evidence revealing any relationship between both the long term and total debts and any of the four proxies of liquidity in the industrial sector, suggesting that the capital structure decision of industrial firms is not affected by liquidity. Summing up, liquidity proxies are only significant and negatively related to long term and total debts in consumer firms, hence, supporting the pecking order theory in capital structure.

4.2.3 Macroeconomic variables

This study also examines the influence of macroeconmic factors, namely inflation and government debt on capital structure, on firm leverage, and finds a significant but quantitatively small negative impact of inflation on long term debt in consumer firms. This finding is contrary to Frank and Goyal (2009) and Fan et al. (2012) who show that inflation has a reverse influence on capital structure of consumer firms. This is because higher inflation also reflects high uncertainty of macroeconomic conditions, thereby causing lenders to move away from debt, particularly long term debt (Demirgüç-Kunt & Maksimovic, 1999).

In addition, the findings in this study also show no relationship between government debt to GDP and debt ratios in both the consumer and industrial firms. This could be interpreted as suggesting that government debt has no important influence over capital structure

decisions in China. This outcome is inconsistent with the findings reported by other countries such as the Czech Republic, Hungary, and France (Mokhova & Zinecker, 2014). It is deduced that the result could be because some of the banks and firms in China are partially owned by the government, and thus the government is said to act in dual capacities, namely as borrower and lender of the funds (Chen, 2004).

4.2.4 Human capital variables

The current study also finds that employment size can exert a statistically significant positive effect on the total debt of consumer firms. This result is similar to Beck et al. (2008) who suggest that firms with smaller employment size face difficulty in obtaining financing especially, from banks. In addition, Sapienza (2004) indicates that state-owned banks prefer to finance firms with larger labour force. Given that majority of banks in China are fully or partially state owned (Sapienza, 2004; Chen, 2004), it is clear why the relationship between employment size and total debt is positive in consumer firms. However, the result for industrial firms shows a negative relationship between the employment size and long term debt. This might be because industrial firms tend to rely on short term financing as well as equity financing. According to Chen (2004), large firms have easier access to capital markets because of their reputation. This is true since, on average, industrial firms have higher total assets than consumer firms, as mentioned in Table 2.

The estimated coefficients noted on the employee productivity show statistical significant and negative effects on long term debt of industrial firms, suggesting that firms with higher employee productivity carry lower long term debt. This could mean that industrial firms with higher employee productivity can produce more profit, therefore use internal funds rather than debt as the main source of financing. However, there is no statistically significant evidence of the relationship between employee productivity and total debt ratios of both consumer and industrial sectors. This means that employee productivity exerts different impacts on capital structure decision in terms of the types of debt. The results noted for the industrial firms where the employment size and long term debt is negative, and the relationship between long term debt and productivity is negative and significant, thereby indicating that these firms do not have easy access to long term debt as their productivity and firm size are related to long term debt. Since there is a positive link, though not significant, between employment size and productivity with

total debt but a negative link with long term debt, the outcome implies that these firms prefer short term debt. According to Chen (2004), Chinese firms prefer short term debt and equity financing because it is easier for creditors to monitor the managers (Delcoure, 2007). In short, this study shows that productivity is negative and significant with long term debt proxy in industrial firms but productivity is not significant with any of the capital structure proxies in consumer firms.

Lastly, employment in industry shows a positive but negligibly small effect on the total debt of consumer firms. However, the estimate is marginally statistically significant, suggesting that employment in industry is a reasonable determinant in consumer firms which can raise the total leverage for industrial firms. This result is consistent with prior studies, that is, in a given period, the capital structure decision is significantly related to employment in industry (Bae et al., 2011; Koskela & Stenbacka, 2000). In contrast, capital structure decisions of industrial firms are not explained statistically by employment in industry.

In summary, the trade-off as well as the signalling theories are dominant in Chinese A-share listed firms of both consumer and industrial sectors. In addition, the pecking order theory weakly explains some of the links between the firm's financial variables and the proxies of capital structure decision.

4.2.5 Dummy variables and robustness check

To control for the 2008 financial crisis, this study includes a dummy variable to test whether it has significant impact on the sample. It is found to be non-significant in all models for both industries whether long term debt or total debt (not reported here). In addition, pooled OLS regression is reported as a robustness check. Tables 6 and 7 below replicate the models used in the system GMM, which results are tabulated in Tables 4 and 5 and discussed above. The results of the OLS regression support the results in the system GMM in sign and magnitude in most of the variables. This occurrence supports the results for the two sectors, as discussed above. A fixed effect panel data were employed but the results do not change dramatically.

Table 6: OLS Regression of Total-Debt in 2008-2013

	Consumer Sector			Industrial Sector		
	M1	M2	M3	M1	M2	M3
Total debt $_{t-1}$	0.69*** (41.00)	0.69*** (40.98)	0.67*** (39.68)	0.82*** (48.79)	0.82*** (48.79)	0.80*** (44.24)
Profitability $_{t}$	-0.01*** (-3.27)	-0.01*** (-3.28)	-0.01*** (-4.02)	0.01* (1.68)	0.01* (1.68)	0.01 (1.36)
Profitability $_{t-1}$	0.00 (0.28)	0.00 (0.28)	0.00 (0.18)	0.01*** (-2.80)	0.01*** (-2.80)	0.01*** (-2.69)
Firm size	0.03*** (4.16)	0.03*** (4.16)	0.01** (2.07)	0.01** (2.02)	0.01** (2.02)	0.01 (1.55)
Non-debt tax shield	-0.80*** (-5.44)	-0.80*** (-5.44)	-0.84*** (-5.34)	-0.76*** (-3.78)	-0.76*** (-3.78)	-0.68*** (-3.28)
Assets growth	-0.00 (-0.26)	-0.00 (-0.26)	0.00 (0.27)	0.04*** (4.46)	0.04*** (4.46)	0.04*** (4.37)
Market growth opportunity	-0.00 (-1.90)	-0.00 (-1.90)	-0.00 (-1.29)	0.00* (-1.73)	0.00* (-1.73)	0.00* (-1.67)
Dividend per share	-0.01 (-0.90)	-0.01 (-0.99)	-0.01 (-0.99)	0.04 (-1.38)	0.04 (-1.38)	0.05 (-1.60)
Cash & marketable securities	0.01** (2.21)	0.01** (2.21)	0.00 (1.01)	0.00 (0.28)	0.00 (0.28)	0.00 (-0.28)
Current ratio	-0.04*** (-5.09)	-0.04*** (-5.09)	-0.05*** (-6.07)	0.01*** (-2.07)	0.01*** (-2.07)	0.02*** (-2.80)
Quick ratio	0.00 (0.03)	0.00 (0.03)	0.01 (1.32)	0.00 (0.30)	0.00 (0.30)	0.01 (1.20)
Cash from operation	-0.01*** (-2.57)	-0.01*** (-2.57)	-0.01*** (-2.55)	0.00 (-1.16)	0.00 (-1.16)	0.00 (-1.30)
Inflation		-0.00*** (-3.07)	-0.00 (-0.99)		0.00 (1.06)	0.00 (1.16)
Government debt to GDP		0.00 (0.24)	-0.00 (-1.21)		0.00 (-1.53)	0.00 (-1.41)
Employment size			0.02*** (4.30)			0.00 (-1.38)
Employee productivity			0.02*** (3.75)			0.01*** (2.35)
Employment in industry			0.00 (1.13)			0.00 (-1.19)
R-squared	0.86	0.86	0.87	0.89	0.89	0.89
Adj. R-squared	0.86	0.86	0.87	0.89	0.89	0.89
F-statistics	314*	314*	286*	360*	359*	322*

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. t-statistics in parentheses.

Table 7: OLS Regression of Long-Term Debt in 2008-2013

	Consumer Sector			Industrial Sector		
	M1	M2	M3	M1	M2	M3
Long-term debt $_{t-1}$	0.84*** (37.78)	0.84*** (37.78)	0.79*** (32.22)	0.75*** (34.28)	0.75*** (40.98)	0.73*** (32.86)
Profitability $_{t}$	0.01 (-1.45)	0.01 (-1.45)	0.00 (-0.83)	0.00 (-0.61)	0.00 (-0.61)	0.00 (-0.04)
Profitability $_{t-1}$	0.01* (1.79)	0.01* (1.79)	0.01 (1.28)	0.00 (0.47)	0.00 (0.47)	0.00 (0.45)
Firm size	0.02*** (2.75)	0.02*** (2.75)	0.04*** (4.99)	0.02*** (4.86)	0.02*** (4.86)	0.03*** (5.66)
Non-debt tax shield	0.04 (-0.22)	0.04 (-0.22)	0.02 (-0.12)	0.14 (1.38)	0.14 (1.38)	0.15 (1.35)
Assets growth	0.03*** (3.60)	0.03*** (3.60)	0.03*** (3.49)	0.01*** (5.65)	0.01*** (5.65)	0.01*** (5.25)
Market growth opportunity	0.00* (-1.75)	0.00* (-1.75)	0.00* (-1.79)	0.00 (-1.37)	0.00 (-1.37)	0.00* (-1.73)
Dividend per share	0.03 (-1.35)	0.03 (-1.35)	0.03 (-1.20)	0.01 (-1.32)	0.01 (-1.32)	0.01 (-1.49)
Cash & marketable securities	0.01*** (-2.92)	0.01*** (-2.92)	0.01 (-1.45)	0.01*** (-3.36)	0.01*** (-3.36)	0.01*** (-2.69)
Current ratio	0.00 (-0.14)	0.00 (-0.14)	0.01* (1.65)	0.01 (-1.28)	0.01 (-1.28)	0.00 (-0.64)
Quick ratio	0.00 (0.57)	0.00 (0.57)	0.01* (-1.69)	0.01* (1.95)	0.01* (1.95)	0.01 (1.05)
Cash from operation	0.00 (-0.61)	0.00 (-0.61)	0.00 (-1.01)	0.00*** (-2.34)	0.00*** (-2.34)	0.00*** (-2.40)
Inflation		0.00** (-2.09)	0.00 (-1.59)		0.00*** (-3.07)	0.00*** (-2.690
Government debt to GDP		0.00 (-1.05)	0.00 (-1.26)		0.00 (0.24)	0.00 (-0.05)
Employment size			0.02*** (-5.28)			0.01*** (-2.84)
Employee productivity			0.02*** (-4.81)			0.01*** (-2.70)
Employment in industry			0.00 (-0.09)			0.00 (0.97)
R-squared	0.77	0.77	0.78	0.72	0.72	0.72
Adj. R-squared	0.77	0.77	0.78	0.71	0.71	0.71
F-statistics	147*	147*	138*	126*	126*	113*

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. t-statistics in parentheses.

5. Conclusion

This study examined the different effects of firm's financial, macroeconomic, and human resource variables on the capital structure of consumer and industrial firms in China. It also examined whether there is a difference between long term debt and total debt in these sectors. The results suggest that some of the firm's financial, macroeconomic and human resource variables that were used in explaining the capital structure of firms in western economies are relevant in explaining the capital structure of Chinese firms in both the consumer and industrial sectors. Table 8 summarises the results of all the variables examined in this study.

This study also finds that long term debt in both sectors are low, implying that consumer and industrial firms prefer short term debt (as total debt combines both short term and long term debts, short term debt would be high if long term debt is low). The comparison of estimated adjustment speeds and coefficients of determinants between consumer and industrial sectors show that sectorial differences wield different effects on firms' capital structure decision. The adjustment speed of leverages, whether it is total or long term debt, is faster in consumer firms than in industrial firms. The shorter period required by consumer firms to adjust to the optimal level of leverage is shorter due to the type of products produced in this industry. Consumer firms produce products that are necessities or for short term consumption as compared to industrial firms which produce products that are durable or for long term consumption. In addition, slower adjustment speed can indicate higher cost of adjustments while faster adjustment speed means lower adjustment cost. Similarly, more profitable and less risky firms have faster adjustment speed as compared to less profitable and riskier firms. Since the bulk of the total debt is short term debt and since long term debt is relatively higher in industrial firms, it can be deduced that it reflects higher cost in industrial firms, thus, lower adjustment speed.

In addition, the adjustment coefficient is relatively large, possibly providing evidence to show that the dynamics implied by the models are not rejected and that firms adjust their leverage ratios relatively quickly in an attempt to achieve their target debt ratios. In addition, the speed of capital structure adjustment varies with firm characteristics which means that firm characteristics and the lagged value of leverage can help to explain much of the variation in the current leverage.

One of the consistent determinants of the leverage in both industries is the firm size. It is found to exert a positive impact on leverage in

Table 8 Summary of Results

Variables	Expected effect (theory)	Consumer Sector		Industrial Sector	
		Total debt	Long term debt	Total debt	Long term debt
Firm financial variables					
Profitability	Pecking order (-)	Significant (-)	Not significant (-)	Not significant (+)	Not significant (-)
Lagged profitability	Pecking order (-)	Not significant (+)	Not significant (+)	Significant (-)	Not significant (+)
Firm size	Trade-off (+) Signalling (+) Pecking order (-)	Significant (+)	Significant (+)	Significant (+)	Significant (+)
Non-debt tax shield	Trade-off (-) Pecking order (+)	Significant (-)	Significant (+)	Not significant (-)	Not significant (-)
Assets growth	Signalling (+) Pecking order (-)	Not significant (-)	Significant (+)	Significant (+)	Not significant (+)
Market growth opportunity	Signalling (+) Pecking order (-)	Not significant (-)	Not significant (-)	Not significant (-)	Not significant (-)
Dividend	Trade-off (-) Signalling (+) Pecking order (-)	Not significant (-)	Not significant (-)	Not significant (-)	Not significant (-)
Liquidity: Cash and marketable securities	Pecking order (-)	Not significant (+)	Significant (-)	Not significan (-)	Not significant (-)
Liquidity: Current ratio	Pecking order (-)	Not significant (-)	Not significant (-)	Not significant (-)	Not significant (+)
Liquidity: Quick ratio	Pecking order (-)	Not significant (-)	Not significant (+)	Not significant (+)	Not significant (-)
Liquidity: Cash from operation	Pecking order (-)	Significant (-)	Significant (-)	Not significant (-)	Not significant (-)
Macroeconomic variables					
Inflation rate	-	Not significant (-)	Significant (-)	Not significant (+)	Not significant (-)
Government debt to GDP	+	Not significant (-)	Not significant (+/-)	Not significant (-)	Not significant (+/-)
Human resource variables					
Employee productivity	+/-	Not significant (+)	Not significant (-)	Not significant (+)	Significant (-)
Employee size	+/-	Significant (+)	Not significant (-)	Not significant (+)	Significant (-)
Employment in industry	+	Significant (+)	Not significant (+)	Not significant (-)	Not significant (+)

general, a result which supports the trade-off theory. This might be related to two facts. First, the Chinese market has been experiencing double digit growth rates in the past few years. Second, large firms might be able to take advantage of the economies of scale as well as enjoy a bargaining power with creditors. In addition, the positive link between size and leverage can also be explained by the signalling theory whereby large firms provide more information than small ones, thus, they could assure creditors of their ability to repay the debts.

Growth opportunities influence leverage in both consumer and industrial firms positively. This result supports the signalling theory of capital structure. Since this study focuses on only consumer and industrial sectors, the sample of this study is concentrated on manufacturing firms which possess tangible assets that can be easily collateralised to obtain debts. Similarly, growth opportunities also reflect high earnings and future growth, thus, signalling creditworthiness to creditors.

The regression investigation of determinants of leverages find some significant differences between the two sectors. The different results obtained could be explained by the fact that the capital structure decisions of consumer firms are more influenced by certain variables. More importantly, this study finds that macroeconomic factors are not important determinants of capital structure decision, especially for industrial firms. Meanwhile, long term debt of industrial firms is insignificantly related to firm's financial variables, except firm size. For consumer firms, in contrast, firm's financial variables play important roles in explaining the leverages. The findings of this paper stressed on the importance of sector difference on capital structure decisions of firms.

The results have implications with regards to the second split share structure and new Tax Law reforms. This study finds that the adjustment speed of the samples is higher than those noted in previous studies on Chinese firms (Ying et al., 2015; Qian et al., 2009). In addition, profitability is also negative but not significant as indicated by previous studies. Moreover, the non-debt tax shield shows mixed results in the consumer firms when long term debt is used, as compared to total debt. In comparison, previous studies on China, before the 2008 tax reform, find non-debt tax shield to be negatively related to leverage. The indication of the mixed results in this study suggests that tax reform can impact on capital structure decisions. Lastly, the results show that firm size has a positive relationship with both long term debt and total debt.

This paper contributes to the theories and empirical work of capital structure literature specifically, in developing economies. The study extends on previous studies on the indirect effect of sectorial level factors influencing the relationship between leverage and firm's financial determinants of capital structure in developing economies, thus, filling the gap of empirical research on developing and huge economies such as China. Most previous works had focused on sectorial level differences in developed markets and very few were done on developing economies even though these two markets differ in terms of capital structure decisions due to their institutional differences.

This study has also extended the applicability of capital structure theories that are highly dependent on the types of leverage despite sector behavioural issues. Although this paper considered two proxies of capital structure decision, namely, book value of total debt and long term debt, different proxies might yield different outcomes when using industry level effect. Thus future studies should consider other proxies for leverage such as market value of total debt and long and short term debts. In addition, future studies should investigate firms in other sectors such as service sector. Other firm specific variables and non-firm specific variables such as asset tangibility should also be considered.

Reference

An, Z. (2012). Taxation and capital structure: Empirical evidence from a quasi-experiment in China. *Journal of Corporate Finance*, *18*(4), 683-689.

Antoniou, A., Guney, Y., & Paudyal, K. (2002). The determinants of corporate capital structure: Evidence from European countries. *Working Paper*. University of Durham, Durham.

Antoniou, A., Guney, Y., & Paudyal, K. (2008). The determinants of capital structure: Capital market-oriented versus bank-oriented institutions. *Journal of Financial and Quantitative Analysis*, *43*(1), 59-92.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variables estimation of error components models. *Journal of Econometrics*, *68*(1), 29-51.

Bae, K.H., Kang, J.K., & Wang, J. (2011). Employee treatment and firm leverage: A test of the stakeholder theory of capital structure. *Journal of Financial Economics*, *100*(1), 130-153.

Bas, T., Muradoglu, G., & Phylaktis, K. (2009). Determinants of capital structure in developing countries. *Research Paper Series*. Cass Business School, London, UK.

Baskin, J. (1989). An empirical investigation of the pecking order hypothesis. *Financial Management*, *18*(1), 26-35.

Beck, T., Demirgüç-Kunt, A. & Maksimovic, V. (2008). Financing patterns around the world: Are small firm different? *Journal of Financial Economics*, *89*(3), 467-487.

Beltratti, A., Bortolotti, B., & Caccavaio, M. (2012). The stock market reaction to the 2005 split share structure reform in China. *Pacific-Basin Finance Journal*, *20*(4), 543-560.

Booth, L., Aivazian, V., Demirgüç-Kunt, A., & Maksimovic, V. (2001). Capital structures in developing countries. *The Journal of Finance, 56*(1), 87-130.

Bradley, M., Jarrell, G.A., & Kim, E. (1984). On the existence of an optimal capital structure: Theory and evidence. *The Journal of Finance*, *39*(3), 857-878.

Bryson, A., Forth, J., & Zhou, M. (2014). Same or different? The CEO labour market in China's public listed companies. *The Economic Journal*, *124*(574), F90-F108.

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

Chang, C., Lee, A.C., & Lee, C.F. (2009). Determinants of capital structure choice: A structural equation modeling approach. *The Quarterly Review of Economics and Finance*, *49*(2), 197-213.

Chang, C., Chen, X., & Liao, G. (2014). What are the reliably important determinants of capital structure in China? *Pacific-Basin Finance Journal*, *30*(5), 87-113.

Chen, D., Jian, M., & Xu, M. (2009). Dividends for tunneling in a regulated economy: The case of China. *Pacific-Basin Finance Journal, 17*(2), 209-223.

Chen, J.J. (2004). Determinants of capital structure of Chinese-listed companies. *Journal of Business Research*, *57*(12), 1341-1351.

Chen, J., & Strange, R. (2005). The determinants of capital structure: Evidence from Chinese listed companies. *Economic Change and Restructuring*, *38*(1), 11-35.

Chittenden, F., Hall, G., & Hutchinson, P. (1996). Small firm growth, access to capital markets and financial structure: Review of issues and an empirical investigation. *Small Business Economics*, *8*(1), 59-67.

Christensen, P.O., Flor, C.R., Lando, D., & Miltersen, K.R. (2014). Dynamic capital structure with callable debt and debt renegotiations. *Journal of Corporate Finance*, *29*(December), 644-661.

Dachraoui, K., & Dionne, G. (1999). Information structure, labor contracts and strategic use of debt. *Working Paper No. 98-03*. Available at http://neumann.hec.ca/gestiondesrisques/98-03.pdf (accessed on 1 September 2016).

Das, S., & Roy, M. (2007). Inter-industry differences in capital structure: Evidence from India. *Finance India*, *21*(2), 517-532.

De Jong, A., Kabir, R., & Nguyen, T. T. (2008). Capital structure around the world: The roles of firm-and country-specific determinants. *Journal of Banking & Finance*, *32*(9), 1954-1969.

DeAngelo, H., & Masulis, R.W. (1980). Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics*, *8*(1), 3-29.

Delcoure, N. (2007). The determinants of capital structure in transitional economies. *International Review of Economics & Finance*, *16*(3), 400-415.

Demirgüç-Kunt, A., & Maksimovic, V. (1999). Institutions, financial markets and firm debt maturity. *Journal of Financial Economics, 54*(3), 295-336.

Devereux, M., & Schiantarelli, F. (1990). Investment, financial factors, and cash flow: Evidence from UK panel data. In *Asymmetric Information, Corporate Finance, and investment* (pp. 279-306). University of Chicago Press.

Drobetza, W., Gounopoulos, D., Merikas, A., & Schröder, H. (2013). Capital structure decisions of globally-listed shipping companies. *Transportation Research Part E: Logistics and Transportation Review, 52*(1), 49-76

Ebrahim, M.S., Girma, S., Shah, M.E., & Williams, J. (2014). Dynamic capital structure and political patronage: The case of Malaysia. *International Review of Financial Analysis, 31*(1),117-128.

Elsas, R., & Florysiak, D. (2011). Heterogeneity in the speed of adjustment toward target leverage. *International Review of Finance, 11*(2), 181- 211.

Elsas, R., & Florysiak, D. (2015). Dynamic capital structure adjustment and the impact of fractional dependent variables. *Journal of Financial and Quantitative Analysis, 50*(5), 1105-1133.

Fama, E.F., & French, K.R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies, 15*(1), 1-33.

Fama, E.F., & French, K.R. (2005). Financing decisions: Who issues stock? *Journal of Financial Economics*, *76*(3), 549-582.

Fan, J. P. H., Titman, S., & Twite, G. (2012). An international comparison of capital structure and debt maturity choice. *Journal of Financial Quantitative Analysis*, *47*(1), 23-56.

Faulkender, M., Flannery, M.J., Hankins, K.W., & Smith, J.M. (2012). Cash flows and leverage adjustments. *Journal of Financial Economics*, *103*(3), 632-646.

Feidakis, A., & Rovolis, A. (2007). Capital structure choice in European Union: Evidence from the construction industry. *Applied Financial Economics*, *17*(12), 989-1002.

Flannery, M.J., & Hankins, K.W.P. (2013). Estimating dynamic panel models in corporate finance. *Journal of Corporate Finance*, *19*(1), 1-19.

Frank, M.Z., & Goyal, V.K. (2009). Capital structure decisions: Which factors are reliably important? *Financial Management*, *38*(1), 1-37.

Friend, I., & Lang, L.H. (1988). An empirical test of the impact of managerial self-interest on corporate capital structure. *The Journal of Finance*, *43*(2), 271-281.

Guney, Y., Li, L., & Fairchild, R. (2011). The relationship between product market competition and capital structure in Chinese listed firms. *International Review of Financial Analysis, 20*(1), 41-51.

Harris, M., & Raviv, A. (1991). The theory of capital structure. *The Journal of Finance*, *46*(1), 297-355.

Himmelberg, C.P., Hubbard, R.G., & Palia, D. (1999). Understanding the determinants of managerial ownership and the link between ownership and performance. *Journal of Financial Economics*, *53*(3), 353-384.

Hovakimian, A., Opler, T., & Titman, S. (2001). The debt-equity choice. *Journal of Financial and Quantitative Analysis*, *36*(1), 1-24.

Huang, G., & Song, F.M. (2006). The determinants of capital structure: Evidence from China. *China Economic Review*, *17*(1), 14-36.

Jõeveer, K. (2013). Firm, country and macroeconomic determinants of capital structure: Evidence from transition economies. *Journal of Comparative Economics*, *41*(1), 294-308

Kale, J., Ryan Jr, H.E., & Wang, L. (2007). Debt as a bonding mechanism: Evidence from the relations between employee productivity, capital structure, and outside employment opportunities. *Working Paper*. Georgia State University, Georgia.

Kale, J., Ryan Jr, H.E., & Wang, L. (2015). *Outside Employment Opportunities, Employee Productivity, and Debt Disciplining*. Available at http://dx.doi.org/10.2139/ssrn.1022067 (accessed on 22 October 2015).

Katagiri, M. (2014). A macroeconomic approach to corporate capital structure. *Journal of Monetary Economics*, *66*(September), 79-94.

Kayo, E.K., & Kimura, H. (2011). Hierarchical determinants of capital structure. *Journal of Banking & Finance*, *35*(2), 358-371.

Kouki, M., & Said, H.B. (2012). Capital structure determinants: New evidence from French panel data. *International Journal of Business and Management*, *7*(1), 214-229.

Koskela, E., & Stenbacka, R. (2000). Is there a tradeoff between bank competition and financial fragility? *Journal of Banking & Finance*, *24*(12), 1853-1873.

Kraus, A., & Litzenberger, R.H. (1973). A state-preference model of optimal financial leverage. *Journal of Finance*, *28*(4), 911-922.

Leary, M.T., & Roberts, M.R. (2010). The pecking order, debt capacity, and information asymmetry. *Journal of Financial Economics*, *95*(3), 332-355.

Lemmon, M.L., & Zender, J. F. (2010), Debt capacity and tests of capital structure theories. *Journal of Financial and Quantitative Analysis*, *45*(5), 1161-1187.

Lemmon, M.L., Roberts, M.R., & Zender, J.F. (2008). Back to the beginning: Persistence and the cross-section of corporate capital structure. *Journal of Finance*, *63*(4), 1575-1608.

Li, K., Wang, T., Cheung, Y.L., & Jiang, P. (2011). Privatization and risk sharing: Evidence from the split share structure reform in China. *Review of Financial Studies*, *24*(7), 2499-2525.

Liu, Q., & Tian, G. (2012). Controlling shareholder, expropriations and firm's leverage decision: Evidence from Chinese non-tradable share reform. *Journal of Corporate Finance*, *18*(4), 782-803.

Liu, S., & Hu, Y. (2005). Empirical analysis of cash dividend payment in Chinese listed companies. *Nature and Science*, *1*(3), 65-70.

MacKay, P., & Phillips, G.M. (2005). How does industry affect firm financial structure? *Review of Financial Studies*, *18*(4), 1433-1466.

Mao, C.X. (2003). Interaction of debt agency problems and optimal capital structure: Theory and evidence. *Journal of Financial and Quantitative Analysis*, *38*(2), 399-423.

Margaritis, D., & Psillaki, M. (2010). Capital structure, equity ownership and firm performance. *Journal of Banking & Finance, 34*(3), 621-632.

Modigliani, F., & Miller, M.H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, *48*(3), 261-297.

Modigliani, F., & Miller, M.H. (1963). Corporate income taxes and the cost of capital: A correction. *The American Economic Review, 53*(3), 433-443.

Mokhova, N., & Zinecker, M. (2014). Macroeconomic factors and corporate capital structure. *Procedia - Social and Behavioral Sciences, 110*(3), 530-540.

Myers, S.C., & Majluf, N.S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187-221.

Omran, M.M., & Pointon, J. (2009). Capital structure and firm characteristics: An empirical analysis from Egypt. *Review of Accounting and Finance*, *8*(4), 454-474.

Oyer, P. (2004). Why do firms use incentives that have no incentive effects? *The Journal of Finance, 59*(4), 1619-1650.

Ozkan, A. (2001). Determinants of capital structure and adjustment to long run target: Evidence from UK company panel data. *Journal of Business Finance & Accounting*, *28*(1-2), 175-198.

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

Peng, M.M., & Simone, D. (2014). *Outlook of Capital Markets in China.* Available at https://www.academia.edu/6450998/ Outlook_of_Capital_Markets_in_China (accessed on 18 February 2014).

Pessarossi, P., & Weill, L. (2013). Choice of corporate debt in China: The role of state ownership. *China Economic Review,* 26(September), 1-16.

Pettit, R.R., & Singer, R.F. (1985). Small business finance: A research agenda. *Financial Management*, *14*(3), 47-60.

Qian, Y., Yao, T., & Wirjanto, T.S. (2009). Do Chinese publicly listed companies adjust their capital structure toward a target level? *China Economic Review, 20*(4), 662-676.

Rajagopal, S. (2011). The portability of capital structure theory: Do traditional models fit in an emerging economy? *Journal of Finance and Accountancy, 5*(1), 1-17.

Rajgopal, S., Shevlin, T., & Zamora, V. (2006). CEOs' outside employment opportunities and the lack of relative performance evaluation in compensation contracts. *The Journal of Finance, 61*(4), 1813-1844.

Ross, S. A. (1977). The determination of financial structure: The incentive-signalling approach. *The Bell Journal of Economics, 8*(1), 23-40.

Sapienza, P. (2004). The effect of government ownership on bank lending. *Journal of Financial Economics*, *72*(2), 357-384.

Scherr, F.C., & Hulburt, H.M. (2001). The debt maturity structure of small firms. *Financial Management*, *30*(1), 85-111.

Shyam-Sunder, L., & Myers, S.C. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics*, *51*(2), 219-244.

Supa, T. (2012). Key factors influencing capital structure decision and its speed of adjustment of Thai listed real estate companies. *Procedia - Social and Behavioral Sciences*, *40*(1),716-720.

Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of Finance*, *43*(1), 1-19.

Tong. G.Q., & Green, C.J. (2005). Pecking order or trade-off hypothesis? Evidence on the capital structure of Chinese companies. *Applied Economics*, *37*(19), 2179-2189.

Tseng, T.Y. (2012). Impact on agency problems of China's reform of the split-share structure. *Emerging Markets Finance and Trade*, *48*(sup3), 35-44.

Voulgaris, F., Asteriou, D., & Agiomirgianakis, G. (2004). Size and determinants of capital structure in the Greek manufacturing sector. *International Review of Applied Economics*, *18*(2), 247-262.

Wald, J.K. (1999). How firm characteristics affect capital structure: An international comparison. *Journal of Financial Research*, *22*(2), 161-187.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, *126*(1), 25-51.

World Bank. (2016). *World Databank. [Custom Cross-Tabulation of Data].* Available at http://data.worldbank.org/ (accessed on 12 September 2016).

Yang, B. (2013). Dynamic capital structure with heterogeneous beliefs and market timing. *Journal of Corporate Finance*, *22*(2), 254-277.

Ying, Y., Albaity, M., & Hassan, C.H.B. (2015). How dynamic capital structure works in China? *International Journal of Research in Business and Technology*, *7*(2), 891-901.

Yu, H.H., & Xu, L.B. (2010). Does the split share structure reform effectively improve firm performance? *Journal of Zhejiang Gongshang University*, *1*(100), 56-62.

Yu, M. (2013). State ownership and firm performance: Empirical evidence from Chinese listed companies. *China Journal of Accounting Research*, *6*(2), 75-87.

Zheng, Y., & Zhu, Y. (2013). Bank lending incentives and firm investment decisions in China. *Journal of Multinational Management*, *23*(3), 146-165.