ANALYSIS OF FINANCING PATTERN OF THE CHINESE AUTOMOBILE INDUSTRY

By

LI, Zhi-Gang

A THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements

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MASTER OF PUBLIC POLICY

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ABSTRACT

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The purpose of this thesis is to look into the pattern of financing and capital structure theory, then apply to the financing pattern and the capital structure-the optimal capital structure. Some micro-factors and macro-factors of optimal capital structure will been analyzed.

This study will focus on Chinese automobile industry under some hypotheses in which identifying some key determinants of the capital structure. Through analyzing current financing pattern of automobile industry and capital structure, intend to seek optimal capital structure and financing pattern for Chinese automobile industry, provide micro-countermeasure and macro-countermeasure for optimum seeking company capital structure.

This study also intends to highlight the major characteristics of the Chinese financial system and market, and discuss corporate financing and investment behaviors.

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I. INTRODUCTION

Corporate financing, capital budgeting and dividend policy composes the corporate finance. Corporate financing is one of very important part. From the corporate internal financing points of view, dividend policy also can be regarded as one of the corporate financing decisions. Financing is not only precondition of corporate existence, but also the base of corporate development. Every corporation should make much account for financing problem. We analyze the financing pattern, and its main purpose is how to control financial risk, then to establish reasonable capital structure, and ultimately, to lower the financing cost and to increase the corporate value.

II. The Theory of Financing Pattern and Capital Structure

A. The financing Pattern

Financing is one of the most basic activities of corporate finance, is a series of finance function, and is a very complicated financial activity.

We can divide financing pattern into internal financing and external financing by financing sources.

Internal financing comes from internally generated cash flow and it's defined as net income plus depreciation minus dividends. External financing is net new debt and new shares of equity net of buybacks.

When we make financing decision, we should fully consider relevant factors discussed in the following sections to decide suitable financing channel. From a financial point of view, the main differences between debt and equity are the following:

- Debt is not the ownership interest in the firm. Creditors do not usually have voting power. The device used by creditors to protect themselves is the loan contract, that is indenture.
- The corporation's payment of interest on debt is considered a cost of doing business and is fully tax-deductible. Thus interest expense is paid out to creditors

before the corporate tax liability is computed. Dividends on common and preferred stock are paid to shareholders after the tax liability has been determined. The government is providing a direct tax subsidy on the use of debt when compared to equity.

- Unpaid debt is a liability of the firm. If it is not paid, the creditors can legally claim the assets of the firm. This action may result in liquidation and bankruptcy. Thus one of the costs of issuing debt is the possibility of financial failure, which does not arise when equity is issued.

1. Internal Financing

Firms raise capital internally by retaining the earnings they generate and by obtaining external funds from the capital markets. In the aggregate, the percentage of total investment funds that U.S. firms generate internally-essentially retained earnings plus depreciation-is generally in the 40-80 percent range. Thus, internal cash flows are typically insufficient to meet the total capital needs of most firms.[1]

2. External Financing: Debt vs. Equity.

There are two basic sources of outside financing, which are debt and equity. Debt is the most frequently used source of outside capital. The important distinctions between

[1] Mark Grinblatt and Sheridan Titman. Financial Markets and Corporate Strategy. 2nd Edition, McGraw-Hill Irwin, 2002.

debt and equity are that debt claims are senior to equity claims; and that the interest payments on debt claims are tax deductible, but dividends on equity claims are not.

1) Sources of short-term Financing

Short-term credit is defined as any liability originally scheduled for payment within one year. There are numerous sources of short-term funds.

- **Accruals**

Continually recurring short-term liabilities, such as wages and taxes that increase spontaneously with the size of business operations. However, a firm ordinarily cannot control its accruals in terms of timing, thus, firms try to make a full use of all the accruals they can, but they have little control over the levels of these accounts.

Account payable is the credit created when one firm buys on credit from another firm. Firms generally make purchases from other firms on credits, recording the debt as an account payable. This type of financing, called trade credit, is the largest single category of short-term debt, representing about 40 percent of the current liabilities for the average non-financial corporation in the US.[2] Accounts payable is a spontaneous source of financing in the sense that it arises from ordinary business transactions.

[2] J. Fred Weston, Scott Besley and Eugene F.Brigham Essentials of Managerial Finance. Eleventh Edition, 2002.

- **Short-term Bank Loans**

Commercial banks are second in importance to trade credit as a source of short-term financing. The influence of banks actually is greater than it appears from the dollar amounts they lend because banks provide non-spontaneous funds. As a firm's financing needs increase, it specifically requests additional funds from its bank. If the request is denied, the firm might be forced to abandon attractive growth opportunities.

- Commercial Paper

Commercial paper is a type of unsecured promissory note issued by large firms, and it is sold primarily to other business firms, insurance companies, pension funds, money market mutual funds, and banks. Commercial paper is called a discount instrument because it is sold at a price below its face, or maturity value. So, the cost of using commercial paper as a source of financing is computed the same as for a discount interest loan.

- Use of Security in short-term Financing

Commercial paper never is secured, but all other types of loans can be secured if this is deemed necessary or desirable. Several different kinds of collateral can be employed, including marketable securities, land or buildings, equipment, inventory, and accounts receivable. Marketable securities make excellent collateral, but few firms that need loans also hold such portfolios. Similarly, real property and equipment

are good forms of collateral, but they generally are used as security form long-term loans rather than form working capital loans. Therefore, most secured short-term business borrowing involves the use of accounts receivable and inventories as collateral.

2) Sources of long-term Financing

- **Common Stock**

Common stock is a share of ownership in a corporation that usually entitles its holders to vote on the corporation's affairs. Common stock financing offers several advantages to the corporation. Common stock does not legally obligate the firm to make payments to stockholders; it carries no fixed maturity date; if a company's prospects look bright, then common stock often can be sold on better terms than debt; the sale of common stock generally increases the creditworthiness of the firm. Disadvantages associated with issuing common stock include the following: the sale of common stock gives some voting rights to new stockholders; the new stockholders will share the bonanza; the cost of underwriting and distributing common stock usually are higher than those for debt or preferred stock; under current tax laws, common stock dividends are not deductible as an expense for tax purpose, but bond interest is deductible.

From a social viewpoint, common stock is a desirable form of financing since it makes businesses less vulnerable to the consequences of declines in sales and earning. Equity-holders take the limited liability of firms within how much equity they own. After paying off the interests of debt, equity-holders enjoy the residual claims from firms. Voting rights is a typical character of equity shares. The more equity shares the greater voting rights to firm.

- **Preferred Stock**

Preferred stock is a financial instrument that gives its holders a claim on a firm's earnings that must be paid before dividends on its common stock can be paid.[3] Preferred stock also is a senior claim in the event of reorganization or liquidation. However, the claims of preferred stockholders are always junior to the debt holders'. Preferred stock is used much less than common stock as a source of capital. Preferred stock is like debt in that its dividend is fixed at the time of sale. In some cases, preferred stock has a maturity date much like a bond. In other cases, preferred stock is more like common stock in that it never matures. Preferred shares are almost always cumulative. Preferred stockholders do not always have voting rights, but they often obtain voting rights when the preferred dividends are suspended.

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[3] See Mark Grinblatt and Sheridan Titman, "Financial Markets and Corporate Strategy", 2nd Edition, McGraw-Hill Irwin, pp.70

- **Warrants**

Warrants are long-term call options on the issuing firm's stock. Call options give their holders the right to buy shares of the firm at a pre-specified price for a given period of time. These options are often included as part of a unit offering, which includes tow or more securities offered as a package.

- **Term Loans**

A term loan is a contract under which a borrower agrees to make a series of interest and principal payments on specific dates to the lender. Term loans usually are negotiated directly between the borrowing firm and a financial institution-generally a bank, an insurance company, or a pension fund.

Term loans have three major advantages over public offerings-speed, flexibility, and low issuance costs. The interest rate on a term loan can be either fixed for the life of the loan or variable.

- **Corporate Bonds**

Corporate bond is a long-term contract under which a borrower agrees to make payments of interest and principal on specific dates to the holder of the bond. Although bonds traditionally have been issued with maturity of between 20 and 30

years, in recent year's shorter maturity, such as 7 to 10 years, have been used to an increasing extent. [4]

- **Mortgage Bonds**

Mortgage bond is a bond backed by fixed assets. That is, with a mortgage bond, the corporation pledges certain assets as security for the bond. First mortgage bonds are senior in priority to claims of second mortgage bonds. All mortgage bonds are written subject to an indenture, which is a legal document that spells out in detail the rights of both the bondholders and the corporation.

- **Debentures**

Debenture is a long-term bond that is not secured by a mortgage on specific property. A debenture is an unsecured bond, and as such it provides no lien against specific property as security for the obligation. In practice, the usage of debentures depends both on the nature of the firm's assets and on its general credit strength.

- **Subordinated debentures**

Subordinated debenture is a bond having a claim on assets only after the senior debt has been paid off in the event of liquidation.

[4] J. Fred Weston, Scott Besley and Eugene F.Brigham, " Essentials of Managerial

- **Other Types of Bonds**

Several other types of bonds are used sufficiently often to warrant mention. Such as convertible bonds, income bonds, and putable bonds, and so on.

- **Leases**

A lease can be viewed as a debt instrument in which the owner of an asset, the lessor, gives the right to use the asset to another party, the lessee, in return for a set of contractually fixed payments. Leasing is often motivated by tax considerations.

B. Capital Structure Theories

In general, a firm can choose among various alternative capital structures. In other words, a firm can choose the different debt-equity ratio. One of the most perplexing issues facing financial managers is the choice of optimal capital structure, which is the mix of debt and equity financing. This section focuses on the theoretical discussions of corporate capital structure decisions.

Until 1958, capital structure theory consisted of loose assertions about investor behavior rather than carefully constructed models that could be tested by formed statistical analysis. In what has been called the most influential set of financial papers ever published by Franco Modigliani and Merton Miller (MM) addressed capital

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Finance", Eleventh Edition, The Dryden Press, 1996

structure in a rigorous, scientific fashion, and they set off a chain of research that continues to this day.[5]

1. MM Model without Taxes

Under certain assumptions, capital structure is irrelevant to firm's value, i.e. $\mathbf{V_L = V_U}$,

Here V_L designates the value of leveraged firm and V_U designates the value of unlevered firm.

Assumptions behind MM model are the following[6]:

- No personal or corporate income taxes

In reality, tax deduction of interest payment different rates applied to dividends, capital gains, and interests.

- EBT is not affected by capital structure and constant (zero growth)

Obviously, this assumption is not true in reality. Furthermore, the high debt level would induce financial distress.

- No brokerage costs and identical borrowing rates for individuals and institutions.

In reality, existence of brokerage costs and different borrowing rates is a fact.

- Firm's choice of capital structure does not convey information to the market.

There exists agency problem and information asymmetry in the real world.[7]

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[5] Franco Modigliani and Merton H. Miller, "The Cost of Capital, Corporation Finance and the Theory of Investment," American Economic Review, June 1958.

[6] Eugene F. Brigham, Louis C.Gapenski, and Michael C.Ehrhardt. Financial Management. Fort Worth: the Dryden Press, 1999.

MM used an arbitrage proof to support their proposition. They showed that, under their assumptions, if two companies differed only in the way they are financed and in their total market values, and then investors would sell shares of the higher-valued firm, buy those of the lower-valued firms, and continue this process until the companies had exactly the same market value. So in the absence of transaction of costs and based on the assumption that investment is fixed, the values of two firms should be equal by arbitrage.

Implication behind the MM model without taxes:

The weighted average cost of capital to the firm is completely independent of its capital structure.

The weighted average cost of capital for the firm, regardless of the amount of debt it uses, is equal to the cost of equity it would have if it used no debt.

The inclusion of more debt in the capital structure will not increase the value of the firms, since the benefits of cheaper debt will be exactly offset by an increase in the riskiness, hence in the cost, of its equity.

[7] To be discussed further on the agency problem model behind this section.

2. MM Model with Corporate Taxes[8]

As the interest payments are tax deductible, so debt financing is preferred to equity because it provides tax shield. Since the gain from leverage increases as debt increases, in theory a firm's value is maximized at 100 percent debt financing.

Although MM included corporate taxes in the second version, they did not extend the model to include personal taxes. In addition, 100 percent debt financing is impossible in the real world. Because if the firm used 100 percent debt financing, the debt-holders would own the entire company, thus, they would have to bear all the business risk. If the debt-holders bear all the risk, then the debt-holders should be equity-holders to the firms; the interest rate on the debt should be equal to the equity capitalization rate at zero debt.

Implications behind the MM model with corporate taxes:

- Since corporations can deduct interest payments but not dividend payments, corporate leverage lowers tax payments.
- The cost of equity rises with leverage, because the risk to equity rises with leverage.

[8] Modigliani, Franco, and Merton H. Miller. Corporate Income Taxes and the Cost of Capital: A Correction. American Economic Review 53, no.3 (1963), pp.433-92.

3. Miller Model with Corporate and Personal Taxes[9]

The Miller model provides and estimates of the value of a levered firm in a world with both corporate and personal taxes.

$$V_L = V_U + D\{1 - (1-T_C)(1-T_S)/(1-T_D)\}$$

Here V_L designates the value of leveraged firm and V_U designates the value of unlevered firm; D designates the amount of debt the firm uses; T_C designates the corporate tax rate; T_S as the personal tax rate on income from stocks, and T_D as the personal tax rate on income from debt.

In general, whenever the effective personal tax rates on income from stock is less than the effective rate on income from bonds; the Miller model produces a lower gain from leverage than MM with-tax model. In other words, Miller's work does show that personal taxes offset some of the benefits of corporate debt.

Criticisms of the MM and Miller Models

- Both MM and Miller assume that personal and corporate leverage is perfect substitute. However, many institutional investors cannot legally borrow to buy stock, hence are prohibited from engaging in homemade leverage.
- Homemade leverage puts stockholders in greater danger of bankruptcy than does corporate leverage.

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[9] Miller, Merton. Debt and Taxes. Journal of Finance 32 (1977), pp.261-97.

- Brokerage and other transaction costs do exist.
- Corporations and investors borrow at the different rate.
- The interest tax shield from corporate debt is more valuable to some firms than to others.
- MM and Miller ignore agency costs and financial distress.

4. The Trade-off Models with Bankruptcy Costs[10]

1) Risk, Financing Pattern and Optimal Capital Structure

The decision as to how much debt and equity a firm should have is extremely important. Using more debt raises the riskiness of the firm's earnings stream. However, a higher debt ratio generally leads to a higher expected rate of return. The higher risk associated with greater debt tends to lower the stock's price,

Risk consists of unsystematic risk and systematic risk. Unsystematic risk is also known as company-specific, or diversifiable risk, is caused by such random events as lawsuit, strikes, successful and unsuccessful marketing programs, winning or losing a major contract and other events that are unique to a particular firm. Systematic risk is also known as market risk, or non-diversifiable risk, or beta risk, it is the risk that

[10] Eugene F. Brigham, Louis C.Gapenski, and Michael C.Ehrhardt. Financial Management. Fort Worth: the Dryden Press, 1999.

remains after diversification, such as war, inflation, recessions and high interest rates, those affects most firms.

Unsystematic risk consists of business risk and financial risk. Conceptually, the firm has a certain amount of risk inherent in its production and sales operations; this is its business risk. Business risk associated with projections of a firm's future returns on assets, or return on equity if the firm uses no debt. Business risk varies from industry to another and also among firms in a given industry. Furthermore, business risk can change over time. Business risk depends on a number of factors, such as demand variability, sales price variability, input price variability, ability to adjust output prices form changes in input prices and the extent to which costs are fixed (operation leverage).

Financial risk is the additional risk placed on the common stockholders as a result of using financial leverage, which results when a firm uses fixed-income securities (debt and preferred stock) to raise capital. A firm intensifies the business risk borne by the common stockholders when financial leverage is created through the use of debt and preferred stock. High financial risk may induce bankruptcy or liquidation.

A firm with high business risk tends to use less debt financing, which can reduce financial risk. A firm would face huge risk when has both high business risk and financial risk. So when manager make financing decision, they should fully consider

how much business risk they have, then reasonably arrange how much financial risk they should take, in order to keep the total risk at the rational level.

Financing decision also affects the corporate capital structure. Managers should base on full consideration of determinations of capital structure, try to find their optimal capital structure, then according to optimal capital structure, to decide the financing decision.

2) Limits to use of Debt

In reality, the greater the use of debt financing, and the larger the fixed interest charges, the greater the probability that a decline in earnings will lead to financial distress, hence the higher the probability that costs associated with financial distress will be incurred. There also exist agency costs that include the lost efficiency plus monitoring costs in real world[11].

[11] One agency relationship is between a firm's stockholders and its bondholders. In the absence of any restrictions, management would be tempted to take actions that would benefit stockholders at the expense of bondholders. Since stockholders might try to exploit bondholder's these and other way, bonds are protected by restrictive covenants. These covenants hamper the corporation's legitimate operations to some extent. Further, the company must be monitored to ensure that the covenants are being obeyed, and the costs of monitoring are passed on to the stockholders in the form of higher debt costs. These will induce lost efficiency and monitoring cost, which increase the agency costs.

Financial distress and agency costs could cause the value of the leverage firm to decline as the level of debt rises. Therefore, the relationship between a firm's value and its use of leverage has two negative components. So the firms value like this:

$V_L = V_U + T_C$ D-PV (Expected financial distress and agency costs)

Here V_L designates the value of leveraged firm and V_U designates the value of unlevered firm; D designates the amount of debt the firm uses; T_C designates the corporate tax rate, PV designates the present values of expected financial distress and agency costs.

3) Implications of the Trade-Off Models

- Firms with more business risk ought to use less debt than one with lower-risk, other things being equal.
- Firms with more tangible, readily marketable assets can use more debt than one with more intangible assets.
- Firms with higher tax rates ought to use more debt than one with lower tax rates.

If the trade-off models are correct, we should find actual target structures that are consistent with the three points just noted. Further, we should find that firms within a given industry have similar capital structures, because such firms should have roughly the same types of assets, business risk, and profitability. In fact, the trade-off models

have very limited empirical support[12]. It does turn out that firms, which invest primarily in tangible assets, do tend to borrow more heavily than firms whose value stems from intangibles. However, empirical evidence refutes other aspects of the trade-off models. In other words, the trade-off models do not tell the full story.

5. Pecking Order of Financing Model

If the managers of firms view their stock was overvalued, then they tend to issue stock for financing; if the mangers view their debt was overvalued, they also tend to issue new debt to public for financing. Thus, investors are likely to price a debt issue and equity issue with skepticism. Investors are not willing to buy both debt and stock. The way managers get out of this problem is to finance projects out of retained earnings. So under this situation, firms prefer to finance projects with internally generated funds. If retained earning is insufficient and has to go to the external capital market, it will first issue debt and then convertible bonds. Common stocks will be issued only as a last resort. This financing hierarchy is known as the pecking order of financing choices. Gordon Donaldson found this model in 1961[13].

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[12] For examples of the empirical research in this area, see Robert A. Taggart, JR. A model of Corporate Financing Decisions. Journal of Finance , December 1977, 1467-1484; and Paul Marsh. The Choice between Equity and Debt: An Empirical Study. Journal of Finance, March 1982, 121-144.

[13]Gordon Dnaldson, Corporate Debt Capacity: A Study of Corporate Debt Policy and the Determination of Corporate Debt Capacity. Boston, Harvard Graduate School of Business Administration, 1961.

A substantial amount of empirical evidence supports the pecking order model. As a result, firms that were profitable in the past have relatively low high debt ratios.

Implications of the pecking order model:

- There is no target amount of leverage. Each firm chooses its leverage ratio based on financing needs.
- Profitable firms use less debt. Since profitable firms generate cash internally, implying less need for outside financing.
- Companies like financial slack. Because firms know that they will have to fund profitable projects at various times in the future. They accumulate cash today. But too much free cash may tempt managers to pursue wasteful activities.

6. Information Asymmetry Model

Professor Stewart Myers[14] noted the inconsistency between Donaldson's findings and the trade-off models, and that inconsistency led Myers to propose a new theory. This is called the signaling, or asymmetric information, theory of capital structure.

Information asymmetry means that different groups of market participants have asymmetric information. Because of asymmetric information, investors know less about a firm's prospects than its managers know. Further, managers try to maximize value for current stockholders, not new ones. Therefore, if the firm has excellent

[14] Stewart C. Myers, The Capital Structure Puzzle. Journal of Finance, July 1984, 575-592

prospects, management will not want to issue new shares, but if things look bleak, then a new stock offering would benefit current stockholders. Consequently, investors take a stock offering to be a signal of bad news; so stock prices tend to decline when new issues are announced. The net effect of signaling effects is to motivate firms to maintain a reserve borrowing capacity designed to permit future investment opportunities to be financed by debt if internal funds are not available.

Implications of the information asymmetry model:

- Company insiders know more about the company's prospects than outside investors, in other word, information asymmetry exists.
- We will observe what economists call adverse selection or lemons problem in financing market. Managers have the greatest incentive to sell stock when the stock is a lemon.
- The adverse selection theory also provides an explanation for pecking order of financing choices.

C. The Determinations of Capital Structure

Many theoretical studies have shown that profitability, tangibility, tax, size, non-debt tax shields, growth opportunities, volatility, and so on affect capital structure. Here, we summarize the results of previous theoretical studies on these factors.

1. Profitability

Although much theoretical work has been done since Modigliani and Miller (1958), no consistent predictions have been reached of the relationship between profitability and leverage. Tax-based models suggest that profitable firms should borrow more, *ceteris paribus*, as they have greater needs to shield income from corporate tax. However, pecking order theory suggests firms will use retained earnings first as investment funds and then move to bonds and new equity only if necessary. In this case, profitable firms tend to have less debt. Agency-based models also give us conflicting predictions. Jensen (1986) and Williamson (1988) define debt as a discipline device to ensure that managers pay out profits rather than build empires. For firms with free cash flow, or high profitability, high debt can restrain management discretion due to the nature of fixed liability of the interest payments.

2. Tangibility

On the relationship between tangibility and capital structure, theories generally state that tangibility is positively related to leverage. In their paper on agency cost, ownership and capital structure, Jensen and Meckling (1976) point out that the agency cost of debt exists as the firm may shift to riskier investment after the issuance of debt, and transfer wealth from creditors to shareholders to exploit to the option nature of equity. If a firm's tangible assets are high, then these assets can be used as collateral, diminishing the lender's risk of suffering such agency costs of debt. Hence, a high

fraction of tangible assets is expected to be associated with high leverage. Also, the value of tangible assets should be higher than intangible assets in case of bankruptcy. Williamson (1988) and Harris and Raviv (1990) suggest leverage should increase with liquidation value and that leverage is positively correlated with tangibility.

3. Tax

The impact of tax on capital structure is the main theme of pioneering study by Modigliani and Miller (1958). It is now widely accepted that tax plays an important role in corporate capital structure decisions. Firms with a higher effective marginal tax rate should use more debt to obtain a tax-shield gain.

The tax deduction for depreciation and investment tax credits is called non-debt tax shields (NTDS). DeAngelo and Masulis (1980) argue that non-debt tax shields are substitutes for the tax benefits of debt financing and a firm with larger non-debt tax shields, *ceteris paribus*, is expected to use less debt.

4. Size

Many studies suggest there is a positive relation between leverage and size. Marsh (1982) finds that large firms more often choose long-term debt while small firms choose short-term debt. Large firms may be able to take advantage of economies of scale in issuing long-term debt, and may even have bargaining power over creditors. So the cost of issuing debt and equity is negatively related to firm size. Overall, larger firms with less asymmetric information problems should tend to have more equity

than debt and thus have lower leverage. However, larger firms are often more diversified and have more stable cash flow; the probability of bankruptcy for large firms is smaller compared with smaller ones, *ceteris paribus*. Both arguments suggest size should be positively related with leverage. Also, many theoretical studies including Harris and Raviv (1990), Stulz (1990), Noe (1988), Narayanan (1988), and Poitevin (1989), suggest that leverage increase with the value of company.

5. Growth Opportunities

Theoretical studies generally suggest growth opportunities are negatively related with leverage. On the one hand, as Jung, Kim and Stulz (1996) show, if management pursues growth objectives, management and shareholder interests tend to coincide for firms with strong investment opportunities. But for firms lacking investment opportunities, debt serves to limit the agency costs of managerial discretion as suggested by Jensen (1986) and Stulz (1990). On the other hand, debt also has its own agency cost. Myers (1977) argues that high-growth firms may hold more real options for future investment than low-growth firms. If high-growth firms need extra equity financing to exercise such options in the future, a firm with excessive debt outstanding may forgo this opportunity because such an investment effectively transfers wealth from stockholders to debtholders. So firms with high growth opportunity may not issue debt in the first place and leverage is expected to be

negatively related with growth opportunities. Jensen and Meckling (1976) also suggest that leverage increase with lack of growth opportunities. Because the firms with lack of growth opportunities may not need to finance, managers tend to swap equity for debt in order to increase the earning per share. If the prospects of firms are bleak, managers have to borrow the money when the cash flow is not sufficient for firms.

6. Volatility

Volatility or business risk and financial risk are, the proxy for the probability of financial distress and generally expected to be negatively related with leverage. Several measures of volatility are used in different studies, such as the standard deviation of the return on sales (Booth et al., 2001), standard deviation of the first difference in operating cash flow scaled by total assets (e.g., Bradley et. al., 1984; Chaplinsky and Niehaus, 1993; and Wald, 1999), or standard deviation of the percentage change in operating income (e.g., Titman and Wessels, 1988). All these studies find that business risk is negatively correlated with leverage.

7. Ownership Structure and Managerial Shareholdings

Agency theory (Jensen and Meckling (1976), Jensen (1986) etc.) suggests that the optimal structure of leverage and ownership may be used to minimize total agency costs. They propose two types of conflicts of interest: conflicts between shareholders and managers, and conflicts between shareholders and debtholders. So it is expected

that there are some correlation between ownership (including managerial ownership) structure and leverage. Theoretically, Leland and Pyle (1977) argue that leverage is positively correlated with the extent of managerial equity ownership. Wald (1999) finds that, in Germany, a small number of professional managers control a sizable percentage of big industrial firms' stocks (such as Siemens and Daimler-Benz) and can force management to act in the stockholders' interests. Based on this fact, he argues that such centralized company control is responsible for the negative coefficient on size.

Managers have an incentive to steer their firms in directions that enhance their own career opportunities and limit their risks. So managers may prefer to take less than the optimal level of debt because additional debt increases the risk of bankruptcy and limits a manager's discretion. On the other hand, managers may prefer investments that enhance their own human capital. Since the compensation of managers is positively correlated with the size of firms. Therefore, managers have incentive to build corporate empire by borrowing more.

8. Conclusions

We summarize the main variables suggested by theory, which are usually thought to influence a corporate capital structure.

Insert table 1 here

III. Further Discussions on the Capital Structure Theory

A.For Whom Does the Capital Structure Matter?

1. Optimal Capital Structure for the Shareholder

The shareholder model takes the maximization of shareholder value as the primary objective of company. People who hold this proposition believe that the firm should belong to shareholders. Shareholders can get profits from the firms after pay off the requirement of the other stakeholders. According to this position, maximizing the shareholders value has to guarantee maximizing the stakeholders' value. But this model does not consider the principal/agent problem that arises from the separation of ownership and control in the modern company. The shareholder model is essentially a creation of market expectation because it seems doubtful that there is any duty imposed on directors to maximize the shareholder value.

2. Optimal Capital structure for the Stakeholder[15]

The stakeholder model of capital structure suggests that the way in which a firm and its non-financial stakeholders interact is an important determinant of the firm's

[15] Mark Grinblatt, Sheridan Titman, Financial Markets and Corporate Strategy. New York: The McGraw-Hill Companies, 2002. pp. 597-604

optimal capital structure. The purpose of optimal capital structure is to maximize stakeholders' value.

The stakeholder model takes a broader view of a company in which it is viewed as being responsible to a wider constituency. The nature of a stakeholder's interest in a company differs from that of a shareholder in that (a) there is no convenient unit for measuring stakeholder interest analogous to the role performed by the company share (b) there is no presumption of equality between different stakeholders.

In common law legal systems, the tendency has been for the shareholder model to predominate, but within that there have been, at different stages in the history of the company, differing perceptions of the respective roles of the shareholders and the board of directors.

IV. Empirical Analyses on the Financing Patterns

On the relationship between factors and companies' capital structure, Harris and Raviv(1990), summarizing a good number of empirical studies from US firms, suggest that "leverage increases with fixed assets, non-debt tax shields, investment opportunities and firm size and decrease with volatility, advertising expenditure, the probability of bankruptcy, profitability and uniqueness of the product." Here, we summarize the results of previous empirical studies on these factors.

A. Profitability

In contrast to theoretical studies, most empirical studies show that leverage is negatively related to profitability. Friend and Lang (1988), and Titman and Wessels (1988) obtain such findings from US firms. Kester (1986) finds that leverage is negatively related to profitability in both the US and Japan. More recent studies using international data also confirm this finding (Rajan and Zingales (1995), and Wald (1999) for developed countries, Wiwattanakantang (1999) and Booth et al. (2001) for developing countries).

B. Tangibility

Empirical studies confirm theoretical prediction that is tangibility is positively related to leverage, include Marsh (1982), Long and Malitz (1985), Friend and Lang (1988), Rajan and Zingales (1995), and Wald (1999).

C. Tax

Although almost all researchers seem to agree that taxes must be important to companies' capital structure. Firms with a higher effective marginal tax rate should use more debt to obtain a tax-shield gain. However, MacKie-Mason (1990) comments that the reason why many studies fail to find plausible or significant tax effects on financing behaviors, which is implied by Modigliani and Miller theorem, is because the debt/equity ratios are the cumulative result of years' of separate decisions and most tax shields have a negligible effect on the marginal tax rate for most firms. Also, a certain portion of total liabilities does not have to pay any interest. Hence there is no tax-shield effect for that portion of total liabilities.

D. Size

Empirical studies, such as Marsh (1982), Rajan and Zingales (1995), Wald (1999), and Booth et al. (2001), generally find that leverage is positively correlated with company size. While both Rajan and Zingales (1995) and Wald (1999) find that larger firms in Germany tend to have less debt, Wald (1999) finds that, in Germany, a small

number of professional managers control a sizable percentage of big industrial firms' stocks (such as Siemens and Daimler-Benz) and can force management to act in the stockholders' interests. Based on this fact, he argues that such centralized company control is responsible for the negative coefficient on size.

E. Non-debt tax shields

Empirical studies generally confirm theoretical prediction, which firms with high non-debt tax shields (NDTS) are expected to use less debt. However, NTDS is highly correlated with tangibility, which is also expected to affect firms' leverage. Wald (1999) uses the ratio of depreciation to total assets and Chaplinsky and Niehaus (1993) employ the ratio of depreciation expense plus investment tax credits to total assets to measure NDTS. Both studies find that leverage is negatively correlated with NDTS.

F. Growth Opportunities

Empirical studies predominately support theoretical prediction, which generally suggest growth opportunities are negatively related with leverage. The findings of Kim and Sorensen (1986), Smith and Watts (1992), Wald (1999), Rajan and Zingales (1955), and Booth et al. (2001) are consistent with the above theoretical prediction.

G. Volatility

Theoretical studies find that business risk is negatively correlated with leverage. In the empirical studies, Mackie-Mason (1990) and Saa-Requejo (1996) confirm this prediction.

H. Ownership Structure and Managerial Shareholdings

Empirical studies produce mixed results for the relationship between leverage and ownership structure: for example, Berger, Ofek and Yermack (1997) confirm such positive correlation, while Friend and Lang (1988) give opposite results. Although ownership structure is believed to have impact on capital structure, there seems no clear predication about the relationship between ownership structure and leverage.

As mentioned before, Wald (1999) finds that, in Germany, a small number of professional managers control a sizable percentage of big industrial firms' stocks (such as Siemens and Daimler-Benz) and can force management to act in the stockholders' interests. Based on this fact, he argues that such centralized company control is responsible for the negative coefficient on size

I. Conclusions

We summarize the empirical studies with a bearing on the application of these variables in modeling capital structure. The list of references is intended to be illustrative and certainly not comprehensive.

Insert table 2 here

V. Practices of Financing Behaviors in the Real World

Many factors influence a firm's financing decisions. The factors' relative importance varies among firms at any point in time and for any given firm over time, but any company planning to raise new capital should consider each of these points. This section will focus on the practices of financing behaviors casually observed in the real world both in the advanced and developing countries including China

A. Financial Market Conditions

Financial market provides the owners of financial assets with liquidation chance; liquidation ability is most important characteristic of financial assets. Financial market can reduce not only transaction fees of financial assets, but also information collection fees. We can classify financial market by different standards. For example, short-term capital market and long-term capital market, issue market and circulation market. Firm managers should consider the conditions of existing capital market when they make financing decisions, such as availability of various financial instruments, floatation cost, expertise of the investment bankers, information market efficiency and market liquidity, and so on, are relevant conditions.

B. Target Capital Structure and Floatation Costs

Firms typically establish target capital structures, and one of the most important considerations in any financing decision is how the firm's actual capital structure compares to its target structure. However, few firms finance each year exactly in accordance with their target capital structure, primarily because exact adherence would increase their floatation costs. Even through firms do tend to finance over the long period in accordance with their target capital structures, flotation costs have a definite influence on the specific financing decisions in any given year.

C. The Firm's Current and Forecasted Conditions

If a firm's current financial condition is poor, its managers might be reluctant to issue new long-term debt at unfavorable terms. Thus, firms in a currently weak financial condition but expecting future improvement would be tend to delay permanent financing until things improved. Conversely, a firm that is financially sound now but its future prospects is not very positive would be motivated to finance long term now rather than to wait. These scenarios are based on the assumption that the capital markets are inefficient in the sense that investors do not have as much information about the firm's future as does its management. This situation undoubtedly is true at times.

If the managers' forecasts higher earnings than do most investors, the firm would not want to issue common stock. It would use debt, and then, after earnings had risen and pushed up the stock price, it would sell common stock to restore the capital structure to its target level.

D. Restrictions in Existing Debt Contracts

Debt covenants can influence a firm's financing decisions. Restrictions on the current ratio, the debt ratio, and so on, can also restrict a firm's ability to use different types of financing at a given time.

E. Availability of Collateral

Generally, secured long-term debt will be less costly than unsecured debt. Thus, firms with large amounts of general-purpose fixed assets are likely to use a relatively large amount of debt, especially mortgage bonds. Additionally, each year's financing decision will be influenced by the amount of newly acquired assets that are available as security for new bonds.

F. The time Value of Money: interest rates

The time value of money is very important concept in corporate finance. The owners of currency wish to get some profit when they give up the use of money for period. The interest rate is the cost of capital. The time value of money is a most important factor of financing cost.

When making financing decisions, we also consider interest rate levels, both absolute and relative. For example, it is customary practices that, when the long-term interest rates are high by historic standards, financial manager would be reluctant to issue long-term debt and thus lock in those high costs for long periods. One solution to this problem is to use long-term debt with a call provision. Alternatively, a firm might finance with short-term debt whenever long-term rates are historically high, and then, assuming that interest rates subsequently fall, sell a long-term issue to replace the short-term debt. Of course, this strategy has its risks. If interest rates climb even higher, the firm will be forced to renew the short-term debt at higher rates, or to replace the short-term debt with a long-term bond, which costs more than it would have cost earlier. Of course, the firms do base their financing decisions on expectations about future interest rates. However, the success of such a strategy requires interest rate forecasts to be right more often than they are wrong, and it is very difficult to find someone with a long-term forecasting record better than 50-50.

G. Credit Risk

Credit risk is induced by creditor cannot fulfill the obligation of debt. One reason is that creditor’s business operation fall into a bad condition, the creditor cannot payback the debt at maturity. The required rate of return on investment would increase

when the credit risk is high, and therefore, the rate of return and credit risk show a positive correlation.

For example, bonds are rated reflecting their probability of default. There are some rating agencies, such as Moody's Investors Service, Standard & Poor's Corporation and so on. The firms should fully consider the credit risk rating from rating agencies, according to their specific situations to choose the best financing channel in order to lower the financing cost.

H. Maturity Risk and Circulation Risk

Equity financing can be considered to be a perpetual security with an infinite maturity. Debt maturities, however, are specified at the time of issue. One commonly used financing strategy is to match debt maturities with asset maturities. In recognition of this fact, firms do consider maturity relationships, and this factor has a major influence on the type of debt securities used.

I. Other Relevant Factors

In some countries, banking sector play a very important role in terms of financing for corporations. China has similar situation. Since the bond market is underdeveloped and most companies are not eligible to issue the equity. So these companies may use more debt financing than listed company.

As existing the agency problem, agency costs of equity can be viewed as an extension of the trade-off model. That is, the change in the value of the firm when debt is substituted for equity is the difference between (1) the tax shied on debt and (2) the increase in the costs of financial distress (including the agency costs of debt). Now, the change in the value of the firm is (1) the tax shield on debt plus (2) the reduction in the agency costs of equity minus (3) the increase in the costs of financial distress (including the agency costs of debt). The optimal debt-equity ratio would be higher in a world with agency costs of equity than in a world without these costs.[16] When we make financing decision, we also should consider the effective tax rate and expected tax rate in the future, firms with higher marginal tax rate tends to use more debt.

As discussed in the previous section, governance aspect also affect the financing decision, managers and old shareholders are unwilling to use equity financing, because they don't want to dilute their power. When a firm use more debt financing, bankruptcy problem should be considered, since more debt may induces high financial distress, it can limit firm to use debt financing.

[16] Ross, Westfield, Jaffe, Corporate Finance, McGraw Hill, 6th edition,2002, pp.437

VI. Financing Pattern of Chinese Automobile Industry

Since Modigliani and Miller published their seminal paper in 1958, the issue of capital structure has generated great interests among financial researchers. With respect to the theoretical studies, there are two widely acknowledged competitive models of capital structure: the tradeoff model and the pecking order hypothesis. It is important to test which hypothesis, tradeoff or pecking order, is more powerful in explaining firms' financing behavior. The following sections will use the listed company of Chinese automobile industry; try to demonstrate the major characteristics of financing pattern of the automobile industry.

A. The Highlight of Chinese Financial Market

1. Money Market

The money market in China consists of the inter-bank lending market, the negotiable instruments market and the Treasury bond repurchase market.

Since January 3, 1996, a nationwide unified inter-bank lending market has been established. It has linked all inter-bank markets across the country. The central bank regulates market interest rates indirectly.[17]

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[17] http://www.emeap.org:8084/RedBook/Cn/A1.htm#A.

The negotiable instruments market is the one in which commercial papers are the main instruments. Commercial paper activity commenced in 1981. In recent years the commercial paper market has developed steadily and the acceptance, discount and rediscount process has become standardized. Rediscounting has become an important instrument for indirect regulation by the central bank.

On April 9, 1996, the central bank engaged in the open market transactions on the money market with treasury bills as the trading instrument. The object of the open market operation is controlling the liquid reserves of the financial institutions. Open market operations are conducted over the counter. Prices are determined by public bidding in terms of short-term repurchase.

From 1997, the central bank enhances its ability to adjust the monetary base and decrease the proportion of direct planned financing. Open market counter-parties will also be expanded from commercial banks to other financial institutions to promote open market operations as one of the central bank’s major monetary policy instruments. As an important policy instruments of the central bank, the open market operations can be used frequently and flexibly to forecast and adjust the money supply.

2. Bond Market

Market made a fresh start and developed rapidly. A bond market with government bond as its main part and corporate bond and financial bond coexisting has begun to take shape. A relatively standard market trading system has also been formed.

Currently, China's government bond market is playing an important role in channeling the pool of domestic saving to various economic activities. Over the past five years (1998-2002), government bonds totaling 2639 billion BMB were issued to boost the economy.

Insert table 3 here

The market for corporate debt is small. There were 12 companies issued corporate bond with 33 billion RMB in 2002. Comparing last year, there were only 10 companies issued corporate bond with 25 billion RMB in 2001. This is a result of deliberate government policy. [18]

In China, we have no municipal bonds and local bonds, also lack for mortgage bonds and bond derivatives. The bond market is simply too small and offers too limited a selection of investments. The balance of the bond market currently stands at RMB 2.9 trillion. Government bonds account for 69% of the total bond market, financial bonds account for 29% and corporate bonds less than 2%. Furthermore, almost 25% of the

[18] Sources from http://www.mof.gov.cn/display/index.jsp

bonds in issued as non-tradable treasury voucher bonds, so the tradable bond market actually stands at just RMB 2.2 trillion, approximately 25% of GDP. Comparing other country, 143% of GDP in USA, 136% in Japan, 95% of GDP for global average. [19]

3. Stock Market

The Chinese stock market has been developing very quickly since 1990 and has now more individual stockholders than any country besides the United States. The Chinese stock market is the second largest in Asia, and stocks are traded on three different stock exchanges: The Hong Kong Stock Exchange (HKSE, established in 1914), The Shanghai Stock Exchange (SHSE, established in 1990) and The Shenzhen Securities Exchange (SZSE, established in 1991). This paper focuses on stock market of Mainland China. We list the China's stock categories as following:

Insert table 4 here

By the end of 2002, China's total stock market capitalization (including A and B shares) was approximately 3.83 trillion RMB, which account for 37.55 percent of GDP; 1223 listed companies with 1310 securities. But the tradable market capitalization was only 1.25 trillion RMB. [20]

[19] Sources from http://www.csrc.gov.cn/CSRCSite/default.htm

[20] Sources from China Securities Regulatory Commission (CSRC)

4. Comments and Conclusions

Chinese companies traditionally focused so heavily on equity financing, since China's capital market is immature. Basically, in China shares are cheaper to issue. In the developed world, corporate financiers tend to go for debt issuance first. But in China, poor corporate governance, low dividend payments, and shares that don't confer genuine ownership rights mean that managers of listed company prefer equity financing than debt financing. Sometimes, they treat equity financing as free lunch.

One possible reason is that Chinese firms prefer and have access to equity financing once they go public as most firms enjoy a favorable high stock price. Also, the management prefers equity financing rather than debt financing because bond market is binding now. Another possible explanation is the fact that the Chinese bond market is still in an infant stage of development. Banks are the major or even the only source of firms' external debt. As a result, firms have to rely on equity financing and trade credit, where firms owe each other in the form of accounts payable. In order to provide more financing opportunities for Chinese firms, it is desirable for China to accelerate the development of its bond market.

B. Hypotheses in Identifying determinants of optimal Capital Structure

1. The survey of the capital structure of Chinese companies

At December 31,2002, there were 1160 listed companies in China, 2926 billion RMB of total assets, 1628 billion RMB of total liabilities, 1548 billion RMB of turnover, 70 billion RMB of net profit, 56 percent of debt ratio, 0.13 RMB of EPS. [21]

The capital structure of Chinese companies has some different features while comparing other developed countries. First, although the practice of GAAP varies across the world and a rigorous comparison in capital structure across countries is impossible, we have clear evidence that Chinese companies have less long-term debt, less total liabilities and higher shareholders' equity compared to their counterparts in both developed countries and some developing countries. Second, Chinese companies tend to rely on higher levels of external financing, especially higher levels of equity financing than those in other developed countries. Third, the difference between book value and quasi-market value of leverage is much bigger in China than that in other countries.

2. Hypotheses

In order to identify determinants of the Capital Structure, we first should make some hypotheses under fully considering relevant factors.

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[21] Sources from China Securities Regulatory Commission (CSRC)

1) Tax System

China's entry to the WTO will motivate several important tax reforms that will restructure China's tax system in line with international tax practices. The major reforms will be in the areas of value-added taxation, income taxation, and customs duties.

The major change to be seen in the VAT will result in its transformation from a productive value-added tax into consumptive value-added tax. Currently, businesses cannot claim a deduction for capital purchases. Following reform, China's VAT will allow a credit for taxes paid on purchase of fixed assets such as equipment and machinery. But according to current documents of State of Administration of Taxation, the VAT rate will not change in short-term. The effective VAT rate is 17%. Reform of the enterprise income tax will involve integration of the tax on domestic and foreign businesses. Currently, foreign businesses are taxed at a lower rate (20% and 30%) than domestic businesses (33%). According to some relevant data, we estimate that the income tax rate will be changed to 30% in the next five years.

China has promised to lower its customs duties in several areas. Beginning in January 2002, China's general tariff level dropped from 15.3% to 12%. According to agreement of WTO, the automobile tariff will be dropped from 70-80% in 2001 to 20-

30% in 2006. The quota of automobile import will be cancelled after four years later.[22]

Since the automobile tariff will be dropped, the price of importing automobile production also will be dropped. It may give more pressure to domestic automobile companies. Some of them may increase the demand of financing to update their production line, try to lower the production cost. Competitions in Chinese automobile industry will serious year by year. Some companies may choose conservative financing policy due to the serious competition; competition may increase both the business risk and probability of default. So they are unwilling to use debt financing since unpaid debt is a liability of the firm. If it is not paid, the creditors can legally claim the assets of the firm. This action may result in liquidation and bankruptcy. Meanwhile, other companies with strong competitiveness would use both debt and equity financing to enlarge their scales and market.

2) Industrial Policy

In March 2001, China released the PRC Outline of the 10th Five-Year Plan (FYP) for National Economic and Social Development. As part of this process, government units from across China formulated specific administrative industrial and development plans for the years 2001-2005. In June 2001, the State Economic and

[22] Sources from State Taxation Administration of PRC

Trade Commission (SETC) issued the FYP report giving an overview of the automobile industrial sector.

According to automobile yearbook of 2002, China's automobile industry in 1999 included 2,391 enterprises and employed 1.8 million people. In 2001, sales revenue of the industry hit RMB234.7 billion, with profits reaching RMB28.9 billion

Total automobile output is projected to greatly increase in the next five years. In 2005, total output is forecasted to be about 3.2 million, including 1.1 million sedans. Value-added industrial output will be RMB130 billion (USD15.7 billion) and is set to account for 1 percent of the national GDP. Automobile exports are expected to account for 8% of sales revenue. Total motorcycle output is forecasted around 13 million, and motorcycle exports will account for 15-20% of sales revenue.[23]

The 10th FYP also includes ambitious goals for organizational and production restructuring. Policy goals include:

"The establishment of two to three large, internationally competitive automobile enterprise groups by 2005. These large enterprise groups will have over 70% of market share, and sales and after-sales service systems will be in conformity with international practice. Five to ten large automobile components enterprise groups with primary competitive ability will be built, with the top three producers of key

[23] Sources from the 10th five year planning of Chinese automobile industry

components obtaining 70% of the domestic market. Components exports should account for 20% of these companies' total sales. Three to four motorcycle enterprise groups with comparatively strong international competitiveness will be established as well."

Under such industry policy, merger and acquisition are unavoidable. Actually, we have three big groups in China, which are Yiqi, Shangqi and Dongfeng. But the scales of these three groups are very small comparing to international automobile industry. This policy can accelerate the development of M & A in Chinese automobile industry. The automobile component industry also has same problem as the automobile industry. So the acquirer may increase the demand of financing in order to pursue the economics of scale by M & A.

3) Financial Policy

According to the national long-term planning, until 2010 China's GDP will be doubled based upon the amount of GDP in 2000. In other words, the GDP annual growth rate is about 6.5 percent from 2001 to 2020. [24]

Interest rates in China are currently set by administration. But Chinese government will gradually establish the market-oriented of interest rate system. According to the

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[24] Sources from the Report of The 16th national congress of the Communist Party of China

Laws of People's Bank of China, the first objective of the monetary policy of central bank is to keep a stable policy of currency. From 2001 to 2020, the People's Bank of China will keep employing the steady monetary policy. That means People's Bank of China will continue to employ zero inflation or low inflation. Based on national planning of regulative target of estimating price, China's annual inflation rate will be 1.5-2.5 percent from 2001 to 2020. But we should consider the influence of economic periodicity and the capability of controlling of central bank. We may estimate that the annual inflation rate will be 3-4 percent during 2001 to 2020.

But if we look at current situation, the effective demand is not enough to stimulate the economic growth. So Chinese government employed the active financial policy in recent years in order to maintain the growth in GDP. We can forecast that a moderate amount of monetary supply and bank loan will be increased by the central bank in the short term.

Since the forecasting annual inflation rate is very low, and the interest rate have been decreased for many times by Chinese government, so the cost of debt financing is lower than before. It is good time for using debt financing.

4) Other factors

There are some favorable factors for China's economic growth currently. First, the policy environment will be more supportive of economic progress. The 16th national congress of the Communist Party of China, held late last year, has decided to build a well-off society in an all-round way over the coming two decades. Second, the positive contributions China's WTO entry brings to its economic development will be further unleashed. Third, some new hot consumption sectors are expected to activate domestic demand, such as automobile, travel and housing sectors. These factors provide the wonderful conditions for corporate development. We will see a prosperous financing market future soon in China.

C. The Status Quo Analysis of Automobile Industry

1. Survey of Chinese Automobile Industry

According to the yearbook of automobile industry, Chinese automobile industry still maintained rapid development in 2001; the amount of production and marketing hits the historical level. Compared 2000, China produces 2.334 millions automobiles with 12.8 percent increase, sells 2.364 millions with 13.3 percent increase. An individual purchase has 60 percent market shares. [25]

[25] Sources from the yearbook 2002 of automobile industry PRC

Through the 15 big groups data (108 manufactories), which are Beiqi, Tianqi, Shangqi, Yuejin, Yiqi, Jinbei, Dongfeng, Chongqi, Hafei, Jianglin, jinanghuai, Changhe, Wulin, Qingling, and Changan, we can see that the economic performance of automobile industry had a big improvement. In 2001, sales revenue is 234.7 billion RMB with an increase of 18.3 percent against previous year; total profit is 28.9 billion RMB with an increase of 29.7 percent; ROE rate is 8.9 percent; gross margin is 5.4 percent; debt ratio is 56.1 percent. [26]

2. Analysis of Financing Pattern and Capital Structure

We pick up 9 listed companies, which main business scope is manufacture of automobile that belong to the 15 big groups of automobile industry mentioned before, and 10 listed automobile component companies. Based on the annual report of year 1999 to 2002, we get the financing pattern and the debt on equity ratio in each company.

Inserts table 5 and table 6 here

Inserts table 7 and table 8 here

After we compared the figures of table 7 and table 8, the interesting thing is that the results are almost same, so we can get the following conclusions:

[26] Sources from the yearbook 2002 of Chinese automobile industry

- Accruals took about 5 percent on total assets in automobile industry from 1999 to 2002.
- Account payable took about 10 percent on total assets.
- Short-term bank loan and long-term bank together took about 20 percent on total assets.
- Commercial paper took less than 3 percent and corporate bond took less than 0.05 percent on total assets.
- Minority interests took about 2 percent on total assets and less than 9 percent financing come from other resources.
- Common stock took 20 percent on total assets and 30 percent on reserves financing. So equity financing took more than 50 percent on total assets.
- Short term financing took about 40 percent, which is near 60 percent financing come from long term.
- EPS in automobile industry is more than 0.20 RMB during 1999-2002.
- Total debt took about 50 percent on total assets. But long –term debt just took less than 10 percent.

Now we look at the results of annual ratio on average in automobile industry year by year, we find another interesting things.

Inserts table 9 and table 10 here

After we compared the figures of table 9 and table 10, we find that the annual ratios on average are almost unchanged year by year both in automobile industry and component industry. That is, the financial structure of automobile industry kept the relatively stable ratio from 1999 to 2002.

3. Characteristics and Causes Analysis

1) Equity financing took high percentage; the main reason is that China's capital market is immature. As mentioned before, in China some managers treat the stock issue as free lunch. Once they have qualification for issuing new shares, they would prefer the equity financing to debt financing. There are three automobile companies issued new share to original shareholders during the period from 1999 to 2002, which are Shangqi in 1999, Beiqi in 1999 and Jinbei in 1999. There are six automobile component companies issued new share to their original shareholders, which are Wangxiang, Xiangyang, Liheqi and Sihuan in 1999, Yunnei and Dongan in 2000. [27]

   Why equity financing took so high percent, why shares are cheaper to issue in China? The following explanations may solve this problem:

   Firstly, In China, according to the Corporate Law, there are some legal regulations on issuing new shares, such as the return on equity and dividend

[27] Sources from http://market.p5w.net/p5w/company/files/cutting.asp

payment should accord with certain standards, is there any illegal actions or not. But there is no legal responsibility of company to shareholders, by way of equity financing has less pressures imposed on firms than debt financing. The controlling shareholders will make any decisions what they like without considering minority shareholders.

Secondly, the concentrated ownership exists in Chinese stock market. The largest shareholder, who is usually the state, holds about 45 percent[28] total shares on average in a listed company. Most shares held by controlling shareholders cannot be listed and traded in the stock markets. Because these shareholders still can keep the controlling position after seasoned equity offerings and the offering price is much higher than book value. The controlling shareholder benefit from increased book value of their shares from seasoned equity offerings. It is also the case for right offerings while the controlling shareholders give up the right. In other words, the controlling shareholders may give up their rights in time of equity financing, but they still are largest shareholder even their share are diluted by new issue.

Thirdly, once they go public, they will prefer equity financing, since the bond

[28] Sources from http://www.google.com/search?hl=null&q=making%20companies%20as%20better%20citizens:%20advancing%20corporate%20governance%20in%20china

market is immature in China as mentioned before.

Finally, this phenomenon also demonstrates that the pecking order model is less powerful in explaining firms' financing behaviour.

2) Small percent on long-term debt financing. One possible reason is due to the financial policy. That is, it is not easy to get long-term bank loan for the company. At the same time, to issue the corporate bond is not available for most companies under the current financial policy.

3) There are 40 percent financing come from the short-term debt. If we look inside, more than 10 percent ST bank loan financing may also due to the financial policy. That is, it is not difficult to get ST bank loan for company comparing LT debt. Small percent on commercial paper financing is the best example of under-developed commercial paper market in China.

4) The annual ratio of financing pattern is almost same as industry average ratio, this also demonstrate that firms within a given industry have similar capital structures, because such firms should have roughly the same types of assets, business risk, and profitability. It is best example of that the trade-off model can explain the firms' financing behaviour.

D. The effects of China's WTO Entry on Automobile Industry

Before China entry to WTO, automobile industry of China is so strongly protected by government policy, which included the high customs duties of import and protected policies of non-customs-duty, furthermore, automobile industry strongly interact with other relative industry. All in all, comparing advanced level of other countries, the gap is very clear. China entry to the WTO will deeply affect China's automobile industry, to force it more open further than before.

China's entry into the World Trade Organization (WTO) will have a major impact on the Automobile Policy. The Working Party Report contains a commitment by China to the effect that the Automobile Policy will be brought into line with China WTO commitments. Consequently, much of the way China has regulated the sector will have to change.

Insert table 11 here

It is quite difficult to project what the effects of WTO Membership on China will be. What is quite clear, however, is that the Chinese automobile market represents one of the hottest – if not the hottest – business niches in the world.

We may get some prediction on how the legal commitments of the WTO will affect the automobile industry in China.

1. Supply Chain Competitiveness:

Prices for domestically produced automobiles in China have been high by any standards. A number of different factors have contributed to this high price, including import duties on components and components for assembly and the high cost of domestically produced parts. Because of gradually lowering duties and the influx of foreign made automobiles, local manufacturers are going to insist that their suppliers reduce costs. If the local suppliers cannot reduce their costs, then the parts and components will be imported. This effect may induce the firms' increase the demand of financing, to update or enlarge their production line; the cost may be reduced under mass production. This must increase the competition among automobile producers due to WTO entry.

2. Dumping Suits:

It is not inconceivable that Chinese manufacturers will commence dumping actions in China against foreign made automobiles and trucks. The pricing of imported automobiles is remarkable close to that of domestically made vehicles, even though tariffs are still quite high and there is an additional value added tax of 17% added to the final price.

3. Development of Distribution Networks

With the vast number of new companies that will be formed and allowed to trade, it is likely that both foreign and domestic manufacturers of automobile will look to add more and more distributors to their list of customers.

4. Increase in Vehicles Available:

Because of the increased quota for foreign automobiles and the fact that existing manufacturers will be free to produce products of their own choosing, it is highly likely that WTO will see a proliferation of vehicles on the road.

5. Increase in Automobile Credit Enterprises:

Barely noticed in the WTO deals are provisions to allow foreign automobile makers to offer automobile loans in China. This area of the automobile industry has the potential to be extremely lucrative, as it will not be subject to the inefficiencies of production and trade.

6. Summary

The China’s WTO entry brings both great opportunity and great risk to Chinese automobile industry. Since the more and more foreign producers will entry to Chinese automobile market, competition will become serious gradually. Bankruptcy probability of firms with small and medium sized will much bigger than before. As an

alternative, most of them would be merged by others. In history, there had more than 2000 automobile firms in USA, but now, less three firms exist in American market.

With China's WTO entry, we should liberalize financial market in China in the future. In order to fulfill the development of economy and international demand, we need financial reform, not only in the attitude but also in the action. It is time to accelerate the development of Chinese bond market, to standardize the Chinese stock market, to reduce the government power and to enlarge the market power. The roles of government should increase the financing resources for company instead of direct regulation. These reforms will change the firms' financing behavior either in the automobile industry or other fields. As Chinese government is moving toward more liberalized economy and financial market, managers would more rational when they make financing decisions, they would increase bond financing and keep debt ratio at the reasonable level in the future.

E. Seeking Optimum Capital Structure and Financing Pattern

In this section, we first present some results of empirical analysis on the determinants of capital structure, which are made by Samuel G.H. Huang and Frank M. Song at 2001, those results were calculated through 799 listed companies. Generally their

results[29] are consistent with the predictions of theoretical studies and the results of previous empirical studies. Profitability is strongly negatively related with total liabilities. Non-debt tax shields are also highly negatively related with total liabilities. Volatility, size and ownership of institutes are positively related with total liability. Tax and management shareholding have no significant effect on total liabilities.

Now we look into the financing pattern of Chinese automobile industry in our model. There only have two automobile-companies with 25 percent of debt ratio, which are 600104 and 000800; the other seven automobile-companies had around 60 percent of debt ratio. It seems no clear evidence to show that profitability is negatively related with total liabilities. But when we look at the data of automobile-component industry, we got the same results as Huang and Song's. That is, company that has higher EPS tends to have lower debt ratio.

In general, the size of automobile-company is bigger than automobile-component company. In our model, 52.56 percent of debt ratio in automobile industry is greater than automobile component industry with 44.78 percent of debt ratio. So the automobile industry tends to use more debt than component industry.

[29] Samuel G.H. Huang, Frank M. Song, The Determinants of Capital Structure: Evidence from China, Hong Kong: 2002

On average, debt ratio of automobile industry in our model is about 50 percent from 1999 to 2002. But it lower than average value of 1160 listed companies at end of year 2001 that is 55.65 percent.[30] Generally speaking, automobile industry has more tangible assets than other industry. It can use more debt financing. Since if a firm's tangible assets are high, then these assets can be used as collateral, diminishing the lender's risk of suffering such agency costs of debt. Hence, a high fraction of tangible assets is expected to be associated with high leverage. Also, the value of tangible assets should be higher than intangible assets in case of bankruptcy. But there is a different result in reality.

When we consider the hypotheses of identifying optimal capital structure at mentioned before, the GDP annual growth rate will be about 6.5 percent and annual inflation rate will be 3-4 percent during 2001 to 2020. Furthermore, China's policy environment will be more supportive of economic progress. The domestic demand of automobile consumption will increase according to official forecast. Actually, Chinese automobile industry is facing both great development opportunity and pressure, since China is already a membership of WTO.

The 10th FYP also design ambitious goals for organizational and production restructuring in automobile industry. So Chinese automobile industry will enjoy some

[30] Sources from China Securities Regulatory Commission (CSRC)

benefit from the government policy, but this will not been keep for long period, because the agreements of WTO.

What are our micro-countermeasure and macro-countermeasure for seeking optimal company capital structure? Based on above analysis, we found the trade-off model is more powerful in explaining firms' financing behavior than pecking order model. The main reasons are listed in following:

- In Chinese automobile industry, firms prefer equity financing than debt financing.
- Every firm in automobile industry tend to have similar capital structure from 1999 to 2002, annual ratios of automobile industry also tend to keep stable figures.

But it is very hard to give the accurate conclusion about debt ratio. We can only give some qualitative analysis for seeking optimal capital structure.

From the macro-countermeasure point of view, government should pay more attention to the development of corporate bond market and commercial paper market. It can offer more channels to company financing. As mentioned before section, Chinese bond market is still in an infant stage of development. Banks are the major or even the only source of firms' external debt. As a result, firms have to reply on equity financing and trade credit, where firms owe each other in the form of accounts payable. In order to provide more financing opportunities for Chinese firms, the

corporate bond issuance quota needs to be relaxed to let more companies issue bonds, it is desirable for China to accelerate the development of its bond market.

"The establishment two to three large, internationally competitive automobile enterprise groups by 2005. These large enterprise groups will have over 70% of market share. Five to ten large automobile components enterprise groups with primary competitive ability will be built, with the top three producers of key parts obtaining 70% of the domestic market." This industry policy clearly show us that the Chinese government attitude to automobile industry. So from the micro-countermeasure point of view, we give the following suggestions for seeking optimal capital structure.

- Since there are 2401 firms in automobile industry as of December 2001,[31] but most of firms' scale are very small, so merger and acquisition is necessary for Chinese automobile industry development according to the experiences of advanced countries. Especially, for automobile component industry. Another reason is that the tariff level will dropped year by year, domestic automobile industry has less competition than foreigner automobile markers. M&A can strengthen the competition of Chinese automobile industry.

  In fact, China has formed three big automobile groups in automobile industry, which are Shanghai automobile, Yiqi and Dongfeng automobile. M&A can

[31] Sources from the automobile yearbook 2002

increase the size of firm, it may reduce volatility in business, and then the firm can use more debt financing. The EPS also can be increased following the leverage increase.

- Because some foreign automobile makers have great interesting in Chinese domestic market, so money-losing companies with high debt ratio may employ the debt-equity swap. It can make the capital structure more reasonable; on the other hand, it also can improve the growth opportunity.
- To increase the weight of long-term debt instead of short-term debt or equity financing, since the Chinese government employs the steady monetary policy and low inflation rate by forecast from 2000 to 2020.
- Based on the theoretical results, firms that have experienced quick sales growth rate tend to have higher leverage while firms that have bright growth opportunities tend to have less leverage. But this suggestion should consider the detailed situations of each firm.

I. Conclusions

In this paper, we first discuss the theory of financing pattern and capital structure. Then focus on Chinese automobile industry, apply to the financing pattern and optimal capital structure, using typical automobile companies accounts data from 1999 to 2002. This paper also intends to highlight the major characteristics of Chinese financial system and market. Our major conclusion is that Chinese listed firms in automobile industry rely heavily on equity financing, long-term bank loans and corporate bonds make little contribution to financing of the corporate sector. After entry to WTO, Chinese government should accelerate the development of bond market and commercial paper market; offer more opportunities to firm financing. Chinese automobile industry should widely use merger and acquisition to strengthen the firm's competition. Money-losing firms with high debt ratio may employ the debt to equity swap from foreigner automobile makers. Trade-off model may have more powerful in explaining firms' financing behavior, but it is very difficult to get the accurate debt ratio for firms.

Table 1. Summary of Theoretical Determinants of Debt Ratios.

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Firm Factor	Impact on Leverage	Reason	Model	Reference
Profitability	Positive	Pecking order hypothesis	Asymmetric information	Myers (1984)
	Negative	Enhances firm's ability to borrow		
Size	Positive	Less vulnerable to bankruptcy	Asymmetric information	Myers (1984)
Free Cash Flow	Positive	Pre-commitment	Agency	Jensen (1986)
Growth opportunities	Negative	Under-investment problem	Agency	Myers (1977)
Asset Tangibility	Positive	Collaterals	Agency	Jensen and Meckling (1976)
	Positive	Reduces bankruptcy costs	Transaction costs	Williamson (1988)
Risk	Negative	Bankruptcy costs	Transaction costs	Myers (1977)
Corporate tax rate	Positive	Reduces corporate tax burden	Taxation	Modgliani & Miller (1963)
Non-debt tax shields	Negative	Shields firm tax	Taxation	DeAngelo & Masulis (1980)
Asset diversification	Positive	Reduces risk		

Table 2. Summary of Empirical Studies

Factor	Expected Sign	Theoretical Reference	Empirical Evidence Positive	Negative
Profitability	Positive Negative	Rajan &Zingales (1995) Myers (1984)		Titman & Wissels(1988) Jensen & Meckling (1992)
Size	Positive	Kim & Sorensen (1986)	Firth (1995) Hussain (1997)	Titman & Wissels(1988)
Free cash flow	Positive	Jensen (1986)	Shenoy and Koch (1996)	Lowe, Naughton, & Taylor (1994)
Growth opportunities	Negative	Myers (1977) Jensen (1986)	Krishnan & Moyer (1996)	Homaifar, Zietz & Benkato (1994)
Asset tangibility	Positive	Myers (1977)	Jensen & Meckling (1992) Thies & Klock (1992)	
Risk	Negative	Bradley, Jarrell & Kim (1984)		Mackie-Mason (1990) Saa-Requejo(1996)
Corporate tax rate	Positive	Modgliani and Miller (1963)	Homaifar, Zietz & Benkato (1994)	Krishnan & Moyer (1996)
Non-debt tax shields	Negative	DeAngelo & Masulis (1980)	Boyle & Eckhold (1997)	Wiwattanakantang (1999)
Inflation	Positive	BADM (2001)		BADM (2001)
Bank liquidity	Positive	Dermirguc-Kunt & Maksimovic(1996)	BADM (2001)	
Stock market development	Negative	Dermirguc-Kunt & Maksimovic(1996)		BADM (2001)

BADM: Booth, Aivazian, Demirguc-Kunt, & Maksimovic (2001)

Table 3. Summary of Chinese Government Bonds Market

Government bonds market	
Year	**Annual Insurance BMB Billion**
1991	28
1992	43
1993	38
1994	114
1995	154
1996	223
1997	245
1998	651
1999	441
2000	466
2001	488
2002	593

Sources: from the Ministry of Finance of PRC

Table 4. Summary of the China's Stock Categories

Type	Description
A-shares	Domestically listed shares, denominated in local currency. Foreign investors may not own these shares.
B-shares	Domestically listed shares of China-incorporated companies, denominated in US$ in Shanghai and HK$ in Shenzhen.
Legal person shares	Roughly a third of every listed firm's equity is transferred to domestic institutions and cannot be traded.
State shares	Another third of equity is transferred to the state (central and local government departments, as well as SOEs wholly owned by the state). The ultimate owner is the State Council. Legal person and state shares are not tradable, though they can be transferred with permission from the CSRC. Alongside legal person shares, this practice allows the government to claim that share issuance is not akin to privatization.
H-shares	Shares of mainland registered companies listed in Hong Kong.
Red-chips	Shares of companies registered overseas and listed abroad (principally in Hong Kong), having substantial Mainland interests and controlled by affiliates or departments of the Chinese government.

Table 5. Financing Pattern of Nine Listed Automobile Manufacturing Companies

550	jiangling					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	1.4	2.96	3.14	3.92	2.86
2	A. P/TA	6.09	7.86	9.44	11.35	8.69
3	ST-Bank Loan/TA	14.21	9.87	11.46	6.54	10.52
4	Commercial paper/TA	1.76	2.13	0.4	0	1.07
5	Others/TA	6.26	8.72	9.21	13.04	9.31
Long-Term Financing						
1	Common Stock/TA	18.6	19.59	21.78	23.8	20.94
2	LT-Bank Loan/TA	34.98	32.27	24.27	15.66	26.80
3	Corporate Bond/TA	0	0	0	0	-
4	Reserves/TA	17.4	17.35	17.85	23.65	19.06
5	Minority Interests/TA	1.25	1.33	1.64	2.04	1.57
6	Others/TA	-1.95	-2.08	0.81	0	-0.81
		100	100	100	100	100.00
	EPS	-0.21	0.06	0.12	0.33	0.08
	TD/TA	64	62	54	51	58
	Debt on Equity	178	171	118	111	145
625	changan					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	4.96	6	6.99	6.2	6.04
2	A. P/TA	14.9	18.19	17.29	23.52	18.48
3	ST-Bank Loan/TA	13.47	11.87	8.88	4.32	9.64
4	Commercial paper/TA	6.27	12.39	12.31	4.87	8.96
5	Others/TA	7.2	6.2	8.7	11.41	8.38
Long-Term Financing						-
1	Common Stock/TA	19.79	16.73	17.51	15.99	17.51
2	LT-Bank Loan/TA	11.37	5.85	2.39	2.15	5.44
3	Corporate Bond/TA	0	0	0	0	-
4	Reserves/TA	18.23	16.22	18.53	22.3	18.82
5	Minority Interests/TA	3.49	6.07	7.11	8.82	6.37
6	Others/TA	0.32	0.48	0.29	0.42	0.38
		100	100	100	100	100.00
	EPS	0.04	0.12	0.13	0.68	0.24
	TD/TA	62	67	64	62	64
	Debt on Equity	163	203	177	161	176
800	yiqi					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	4.38	5.84	5.19	4.57	5.00
2	A. P/TA	7.59	8.74	11.8	15.47	10.90
3	ST-Bank Loan/TA	2.98	4.65	7.25	4.89	4.94
4	Commercial paper/TA	0.82	0.58	0.15	0.63	0.55

5	Others/TA	1.83	1.92	2.65	3	2.35
Long-Term Financing						
1	Common Stock/TA	24.41	26.02	25.88	25.47	25.45
2	LT-Bank Loan/TA	0	0	0	0	-
3	Corporate Bond/TA	0	0	0	0	-
4	Reserves/TA	57.11	51.74	46.26	44.86	49.99
5	Minority Interests/TA	0	0	0	0	-
6	Others/TA	0.88	0.51	0.82	1.11	0.83
		100	100	100	100	100.00
	EPS	0.32	0.17	0.01	0.15	0.16
	TD/TA	18	22	28	30	25
	Debt on Equity	23	29	39	42	33
927	tianqi					-
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	2.28	4.46	8.27	8.7	5.93
2	A. P/TA	13.2	8.69	4.5	8.58	8.74
3	ST-Bank Loan/TA	15.59	15.37	20.15	15.63	16.69
4	Commercial paper/TA	0	0	4.03	9.03	3.27
5	Others/TA	6.71	4.83	4.36	9.9	6.45
Long-Term Financing						-
1	Common Stock/TA	21.76	20.9	20.13	20.38	20.79
2	LT-Bank Loan/TA	20.24	15.14	12.15	10.87	14.60
3	Corporate Bond/TA	0	0	0	0	-
4	Reserves/TA	19.89	30.18	26.05	15.7	22.96
5	Minority Interests/TA	0	0	0	0	-
6	Others/TA	0.33	0.43	0.36	1.21	0.58
		100	100	100	100	
	EPS	0.31	0.19	-0.06	-0.49	-0.01
	TD/TA	58	49	54	63	56
	Debt on Equity	140	96	117	170	131
600081	dongfeng					-
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	3.6	2.9	8.1	5.03	4.91
2	A. P/TA	10	7.3	6.7	11.47	8.87
3	ST-Bank Loan/TA	22	20.3	27.4	17.97	21.92
4	Commercial paper/TA	0.2	3.2	7.1	5.13	3.91
5	Others/TA	6.72	7.8	2.4	2.99	4.98
Long-Term Financing						
1	Common Stock/TA	27.2	27.5	24.51	25.25	26.12
2	LT-Bank Loan/TA	0	0	0	0	-
3	Corporate Bond/TA	0	0	0	0	-
4	Reserves/TA	26.4	25.6	22.56	22.52	24.27
5	Minority Interests/TA	3.47	2.6	1.04	1.94	2.26
6	Others/TA	0.41	2.8	0.19	7.7	2.78
		100	100	100	100	100.00
	EPS	0.3	0.26	0.25	0.29	0.28
	TD/TA	43	47	53	52	49

	Debt on Equity	75	88	112	109	96
600104	shangqi					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	17.44	14.68	8.06	10.53	12.68
2	A. P/TA	2.61	2.79	2.54	3.79	2.93
3	ST-Bank Loan/TA	2.42	6.7	4.88	1	3.75
4	Commercial paper/TA	0.2	0.2	0.13	0.13	0.17
5	Others/TA	1.92	3.5	4.58	3.26	3.32
Long-Term Financing						-
1	Common Stock/TA	25.79	21.77	23.69	24.28	23.88
2	LT-Bank Loan/TA	0.25	2.41	3.09	1.7	1.86
3	Corporate Bond/TA	0	0	0	0	-
4	Reserves/TA	48.02	47.11	52.51	54.73	50.59
5	Minority Interests/TA	0.22	0.19	0.11	0.09	0.15
6	Others/TA	1.13	0.65	0.41	0.49	0.67
		100	100	100	100	100.00
	EPS	0.51	0.53	0.31	0.42	0.44
	TD/TA	26	31	24	21	26
	Debt on Equity	35	45	31	27	35
600166	beiqi					-
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	4.79	2.97	1.63	0.37	2.44
2	A. P/TA	28.86	25.07	18.8	22.17	23.73
3	ST-Bank Loan/TA	16.51	25.48	29.93	23.68	23.90
4	Commercial paper/TA	1.35	2.57	6.31	6.3	4.13
5	Others/TA	7.4	6.83	8.58	11.64	8.61
Long-Term Financing						-
1	Common Stock/TA	14.05	11.98	9.93	8.75	11.18
2	LT-Bank Loan/TA	0.38	0.27	0.21	1.73	0.65
3	Corporate Bond/TA	0	0	0	0	-
4	Reserves/TA	23.66	22.53	24.05	24.87	23.78
5	Minority Interests/TA	2.74	1.89	0.05	0.06	1.19
6	Others/TA	0.26	0.41	0.51	0.43	0.40
		100	100	100	100	100.00
	EPS	0.4	0.32	0.37	0.45	0.39
	TD/TA	62	65	66	66	65
	Debt on Equity	164	190	194	196	186
600372	changhe					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	*	*	0.39	1.08	0.74
2	A. P/TA			16.83	20.89	18.86
3	ST-Bank Loan/TA			19.21	17.43	18.32
4	Commercial paper/TA			8.19	10.38	9.29
5	Others/TA			5.89	5.49	5.69
Long-Term Financing						-
1	Common Stock/TA			13.24	11.46	12.35
2	LT-Bank Loan/TA			3.66	0	1.83

3	Corporate Bond/TA			0	0	-
4	Reserves/TA			20.84	24.78	22.81
5	Minority Interests/TA			11.66	8.47	10.07
6	Others/TA			0.09	0.02	0.06
				100	100	100.00
	EPS			0.21	0.21	0.21
	TD/TA			66	64	65
	Debt on Equity			193	176	185
600609	jinbei					-
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	3.21	-0.07	0.55	1.08	1.19
2	A. P/TA	10	8.92	7.14	6.15	8.05
3	ST-Bank Loan/TA	24.64	16.47	24.47	38.58	26.04
4	Commercial paper/TA	3	3.11	0	0	1.53
5	Others/TA	11.51	20	26.21	19.11	19.21
Long-Term Financing						-
1	Common Stock/TA	11.87	19.14	21.51	24.59	19.28
2	LT-Bank Loan/TA	10.72	5.53	1.95	1.86	5.02
3	Corporate Bond/TA	1.27	1.27	0.31	0	0.71
4	Reserves/TA	8.57	20.74	17.13	7.17	13.40
5	Minority Interests/TA	7.83	0.27	0.59	1.17	2.47
6	Others/TA	7.38	4.62	0.14	0.29	3.11
		100	100	100	100	100.00
	EPS	0.23	0.23	-0.76	0.01	-0.07
	TD/TA	80	60	61	68	67
	Debt on Equity	389	151	159	220	180

Table 6 Financing Pattern of Ten Listed Automobile-Component Listed Companies

559	wangxiang					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	5.7	6.58	9.58	9.36	7.81
2	A. P/TA	2.82	10.47	9.18	7.65	7.53
3	ST-Bank Loan/TA	0.88	9.86	5.3	6.36	5.60
4	Commercial paper/TA	0.28	0.29	0.33	0.46	0.34
5	Others/TA	3.93	5.89	6.74	6.09	5.66
Long-Term Financing						
1	Common Stock/TA	27.65	19.05	17.72	16.04	20.12
2	LT-Bank Loan/TA	0	0	0.63	3.09	0.93
3	Corporate Bond/TA	0	0	0	0	0.00
4	Reserves/TA	58.52	40.32	42.24	40.46	45.39
5	Minority Interests/TA	0	6.93	7.29	9.73	5.99
6	Others/TA	0.22	0.61	0.99	0.76	0.65
		100	100	100	100	100.00
	EPS	0.42	0.52	0.33	0.36	0.41
	TD/TA	13.77	31.94	40.01	43.48	32.30
	Debt on Equity	15.97	46.93	66.69	76.93	51.63
622	yueyang					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	2.29	2.96	2.34	1.19	2.20
2	A. P/TA	5.31	5.5	7.32	8.74	6.72
3	ST-Bank Loan/TA	16.3	17.55	25.1	31.5	22.61
4	Commercial paper/TA	0.48	0.63	0.36	2.34	0.95
5	Others/TA	7.85	10.78	12.14	10.37	10.29
Long-Term Financing						
1	Common Stock/TA	25.72	30.02	28.86	28.86	28.37
2	LT-Bank Loan/TA	14.86	13.64	7.98	8.74	11.31
3	Corporate Bond/TA	0	0	0	0	0.00
4	Reserves/TA	22.22	14.53	12.2	4.07	13.26
5	Minority Interests/TA	3.99	3.7	3.37	3.56	3.66
6	Others/TA	0.98	0.69	0.33	0.63	0.66
		100	100	100	100	100.00
	EPS	0.13	0.1	0.05	0.03	0.08
	TD/TA	52.17	55.5	59.04	67.07	58.45
	Debt on Equity	109.07	124.72	144.14	203.67	145.40
678	xiangyang					
Short-Term Financing		1999	2000	2001	2002	Average

1	Accruals/TA	4.94	3.7	4.8	6.89	5.08
2	A. P/TA	5.15	5.25	4.47	4.29	4.79
3	ST-Bank Loan/TA	15.71	12.14	10.64	10.53	12.26
4	Commercial paper/TA	0.7	1.03	1.06	0.47	0.82
5	Others/TA	4.32	3.98	5.69	17.43	7.86
Long-Term Financing						0.00
1	Common Stock/TA	13.77	13.84	16.17	17.87	15.41
2	LT-Bank Loan/TA	19.91	21.68	21.91	14.42	19.48
3	Corporate Bond/TA	0	0	0	0	0.00
4	Reserves/TA	35.23	38.28	35.16	27.95	34.16
5	Minority Interests/TA	0	0	0	0	0.00
6	Others/TA	0.27	0.1	0.1	0.15	0.16
		100	100	100	100	100.00
	EPS	0.22	-0.4	-0.65	-0.6	-0.36
	TD/TA	50.97	48.3	48.61	54.12	50.50
	Debt on Equity	103.96	93.42	94.59	117.96	102.48
903	yunnei					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	1.13	5.15	8.27	7.48	5.51
2	A. P/TA	13.69	9	9.35	11.53	10.89
3	ST-Bank Loan/TA	13.92	8.91	11.19	7.24	10.32
4	Commercial paper/TA	0.79	0.68	0.04	0.08	0.40
5	Others/TA	6.65	2.42	1.43	2.57	3.27
Long-Term Financing						0.00
1	Common Stock/TA	22.26	21.39	20.15	18.33	20.53
2	LT-Bank Loan/TA	4.86	0	0	0	1.22
3	Corporate Bond/TA	0	0	0	0	0.00
4	Reserves/TA	35.86	51.4	48.73	52	47.00
5	Minority Interests/TA	0	0	0	0	0.00
6	Others/TA	0.84	1.05	0.84	0.77	0.88
		100	100	100	100	100.00
	EPS	0.3	0.44	0.45	0.5	0.42
	TD/TA	41.85	27.21	31.15	29.61	32.46
	Debt on Equity	71.97	37.38	45.24	42.07	49.17
600148	liheqi					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	9.32	8.92	5.93	4.93	7.28
2	A. P/TA	4.2	3.43	4.54	7.61	4.95
3	ST-Bank Loan/TA	6.3	9.64	4.84	1.46	5.56
4	Commercial paper/TA	0.32	0	0	0	0.08
5	Others/TA	5.38	4.91	6.7	6.49	5.87

Long-Term Financing						0.00
1	Common Stock/TA	24.17	31.63	41.79	41.58	34.79
2	LT-Bank Loan/TA	13.73	13.86	10.89	4.39	10.72
3	Corporate Bond/TA	0	0	0	0	0.00
4	Reserves/TA	35.9	26.94	24.81	33.27	30.23
5	Minority Interests/TA	0	0	0	0	0.00
6	Others/TA	0.68	0.67	0.5	0.27	0.53
		100	100	100	100	100.00
	EPS	0.55	0.09	0.06	0.09	0.20
	TD/TA	40.08	41.42	33.13	25.11	34.94
	Debt on Equity	66.89	70.71	49.54	33.53	55.17
600178	dongan					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	9.22	11.62	9.04	8.16	9.51
2	A. P/TA	6.2	10.19	11.83	13.59	10.45
3	ST-Bank Loan/TA	2.26	0.3	0	0	0.64
4	Commercial paper/TA	0	0	0	0	0.00
5	Others/TA	10.97	4.76	8.65	9.12	8.38
Long-Term Financing						0.00
1	Common Stock/TA	24.18	25.48	23.21	21.07	23.49
2	LT-Bank Loan/TA	2.17	4.28	4.22	3.19	3.47
3	Corporate Bond/TA	0	0	0	0	0.00
4	Reserves/TA	43.99	39.87	42.61	44.65	42.78
5	Minority Interests/TA	0	0	0	0	0.00
6	Others/TA	1.01	3.5	0.44	0.22	1.29
		100	100	100	100	100.00
	EPS	0.31	0.33	0.2	0.25	0.27
	TD/TA	31.86	34.68	34.18	34.29	33.75
	Debt on Equity	46.76	53.09	51.93	52.18	50.99
600418	jiangqi					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	*	*	6.32	5.35	5.84
2	A. P/TA			15.25	14.46	14.86
3	ST-Bank Loan/TA			3.57	0.99	2.28
4	Commercial paper/TA			0.94	2.27	1.61
5	Others/TA			6.5	8.65	7.58
Long-Term Financing						0.00
1	Common Stock/TA			18.79	14.42	16.61
2	LT-Bank Loan/TA			4.85	1.39	3.12
3	Corporate Bond/TA			0	0	0.00
4	Reserves/TA			43.78	52.47	48.13
5	Minority Interests/TA			0	0	0.00
6	Others/TA			0	0	0.00

				100	100	100.00
	EPS			0.39	0.58	0.49
	TD/TA			37.49	33.1	35.30
	Debt on Equity			59.97	49.48	54.73
600623	luntai					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	4.32	6.84	9	7.49	6.91
2	A. P/TA	8.91	8.62	8.11	10.23	8.97
3	ST-Bank Loan/TA	27.14	29.05	32.63	31.25	30.02
4	Commercial paper/TA	5.03	7.52	0.45	0.73	3.43
5	Others/TA	9.79	11.6	17.14	23.67	15.55
Long-Term Financing						
1	Common Stock/TA	11.55	12.27	19.58	15.73	14.78
2	LT-Bank Loan/TA	12.67	9.67	6.3	5.79	8.61
3	Corporate Bond/TA	0.21	0.08	0	0	0.07
4	Reserves/TA	17.24	11.61	5.01	2.12	9.00
5	Minority Interests/TA	1.03	0.94	0	2.7	1.17
6	Others/TA	2.11	1.8	1.78	0.29	1.50
		100	100	100	100	100.00
	EPS	0	-0.48	0.02	0.07	-0.10
	TD/TA	71.2	76.13	75.42	82.15	76.23
	Debt on Equity	238.93	318.94	306.83	460.22	331.23
600660	fuyao					
Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	1.91	4.54	3.47	1.75	2.92
2	A. P/TA	5.27	4	2.95	2.97	3.80
3	ST-Bank Loan/TA	46.05	35.52	27.59	22.89	33.01
4	Commercial paper/TA	0.24	1.4	2.84	4.92	2.35
5	Others/TA	5.02	5.26	6.29	5.36	5.48
Long-Term Financing						
1	Common Stock/TA	22.76	20.4	21.74	23.03	21.98
2	LT-Bank Loan/TA	1.29	10.22	20.9	28.11	15.13
3	Corporate Bond/TA	0	0	0	0	0.00
4	Reserves/TA	9.95	14.99	11.63	9.91	11.62
5	Minority Interests/TA	5.18	0	0.41	0.33	1.48
6	Others/TA	2.33	3.67	2.18	0.73	2.23
		100	100	100	100	100.00
	EPS	0.28	0.59	0.37	0.41	0.41
	TD/TA	67.29	64.64	66.62	67.05	66.40
	Debt on Equity	296.3	182.81	199.58	203.49	220.55
600742	sihuan					

Short-Term Financing		1999	2000	2001	2002	Average
1	Accruals/TA	16.57	10.4	8.23	6.18	10.35
2	A. P/TA	8.09	6.69	9.31	17.41	10.38
3	ST-Bank Loan/TA	0.76	0	0	4.28	1.26
4	Commercial paper/TA	0	0	0	0.89	0.22
5	Others/TA	4.55	6.61	5.61	3.71	5.12
Long-Term Financing						0.00
1	Common Stock/TA	23.96	20.95	16.24	12.94	18.52
2	LT-Bank Loan/TA	0	0	0	0	0.00
3	Corporate Bond/TA	0	0	0	0	0.00
4	Reserves/TA	45.27	55.36	60.68	54.53	53.96
5	Minority Interests/TA	0.02	0.03	0.03	0.02	0.03
6	Others/TA	0.78	-0.04	-0.1	0.04	0.17
		100	100	100	100	100.00
	EPS	0.59	0.52	0.67	0.67	0.61
	TD/TA	30.71	23.58	23.04	32.52	27.46
	Debt on Equity	44.32	30.86	29.94	48.19	38.33

Table 7 Summary of Financing Analysis of Nine-Listed Automobile Manufacturing Companies

Financing Analysis of Automobile industry (1999~2002 on average)											
Code of listed companies		550	625	800	927	600081	600104	600166	600372	600609	Average
Short-term Financing											
1	Accruals/TA	2.86	6.04	5.00	5.93	4.91	12.68	2.44	0.74	1.19	4.64
2	A. P/TA	8.69	18.48	10.90	8.74	8.87	2.93	23.73	18.86	8.05	12.14
3	ST-Bank Loan/TA	10.52	9.64	4.94	16.69	21.92	3.75	23.90	18.32	26.04	15.08
4	Commercial paper/TA	1.07	8.96	0.55	3.27	3.91	0.17	4.13	9.29	1.53	3.65
5	Others/TA	9.31	8.38	2.35	6.45	4.98	3.32	8.61	5.69	19.21	7.59
											43.10
Long-term Financing											
1	Common Stock/TA	20.94	17.51	25.45	20.79	26.12	23.88	11.18	12.35	19.28	19.72
2	LT-Bank Loan/TA	26.80	5.44	0.00	14.60	0.00	1.86	0.65	1.83	5.02	6.24
3	Corporate Bond/TA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.08
4	Reserves/TA	19.06	18.82	49.99	22.96	24.27	50.59	23.78	22.81	13.40	27.30
5	Minority Interests/TA	1.57	6.37	0.00	0.00	2.26	0.15	1.19	10.07	2.47	2.67
6	Others/TA	-0.81	0.38	0.83	0.58	2.78	0.67	0.40	0.06	3.11	0.89
											56.90
	EPS	0.08	0.24	0.16	-0.01	0.28	0.44	0.39	0.21	-0.07	0.19
	TD/TA	57.58	63.66	24.55	55.99	48.63	25.50	64.98	64.84	67.33	52.56
	Debt on Equity	145	176	32.99	131	95.88	34.58	186.04	184.69	180.24	129.60

Table 8 Summary of Financing Analysis of Ten Listed Automobile–Component Companies

Financing Analysis of Automobile Component industry (1999~2002 on average)												
		559	622	678	903	600148	600178	600418	600623	600660	600742	Average
short-term Financing												
1	Accruals/TA	7.81	2.20	5.08	5.51	7.28	9.51	5.84	6.91	2.92	10.35	6.34
2	A. P/TA	7.53	6.72	4.79	10.89	4.95	10.45	14.86	8.97	3.80	10.38	8.33
3	ST-Bank Loan/TA	5.60	22.61	12.26	10.32	5.56	0.64	2.28	30.02	33.01	1.26	12.36
4	Commercial paper/TA	0.34	0.95	0.82	0.40	0.08	0.00	1.61	3.43	2.35	0.22	1.02
5	Others/TA	5.66	10.29	7.86	3.27	5.87	8.38	7.58	15.55	5.48	5.12	7.50
												35.55
long-term Financing												
1	Common Stock/TA	20.12	28.37	15.41	20.53	34.79	23.49	16.61	14.78	21.98	18.52	21.46
2	LT-Bank Loan/TA	0.93	11.31	19.48	1.22	10.72	3.47	3.12	8.61	15.13	0.00	7.40
3	Corporate Bond/TA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.01
4	Reserves/TA	45.39	13.26	34.16	47.00	30.23	42.78	48.13	9.00	11.62	53.96	33.55
5	Minority Interests/TA	5.99	3.66	0.00	0.00	0.00	0.00	0.00	1.17	1.48	0.03	1.23
6	Others/TA	0.65	0.66	0.16	0.88	0.53	1.29	0.00	1.50	2.23	0.17	0.80
												64.45
	EPS	0.41	0.08	-0.36	0.42	0.20	0.27	0.49	-0.10	0.41	0.61	0.24
	TD/TA	32.30	58.45	50.50	32.46	34.94	33.75	35.30	76.23	66.40	27.46	44.78
	Debt on Equity	51.63	145.40	102.48	49.17	55.17	50.99	54.73	331.23	220.55	38.33	109.97

Table 9 Summary Annual Ratios on Average (1999~2002) of Financing Analysis of Nine Listed Automobile Manufacturing Companies

Automobile industry	1999	2000	2001	2002	Average 1999-2002
Accruals/TA	5.26	4.97	4.70	4.61	4.64
A. P/TA	11.66	10.95	10.56	13.71	12.14
ST-Bank Loan/TA	13.98	13.84	17.07	14.45	15.08
Commercial paper/TA	1.70	3.02	4.29	4.05	3.65
Others/TA	6.19	7.48	8.06	8.87	7.59
					43.10
Common Stock/TA	20.43	20.45	19.80	20.00	19.72
LT-Bank Loan/TA	9.74	7.68	5.30	3.77	6.24
Corporate Bond/TA	0.16	0.16	0.03	0.00	0.08
Reserves/TA	27.41	28.93	27.31	26.73	27.30
Minority Interests/TA	2.38	1.54	2.47	2.51	2.67
Others/TA	1.10	0.98	0.40	1.30	0.89
					56.90
EPS	0.24	0.24	0.06	0.23	0.19
TD/TA	51.59	50.46	52.25	53.04	52.56
Debt on Equity	145.94	121.60	126.66	112.69	129.6

Table 10 Summary Annual Ratios on Average (1999~2002) of Financing Analysis of Ten Listed Automobile–Component Companies

Component	1999	2000	2001	2002	Average 1999-2002
Accruals/TA	6.16	6.75	6.70	5.88	6.34
A. P/TA	6.63	7.02	8.23	9.85	8.33
ST-Bank Loan/TA	14.37	13.66	12.09	11.65	12.36
Commercial paper/TA	0.87	1.28	0.60	1.22	1.02
Others/TA	6.50	6.25	7.69	9.35	7.50
					35.55
Common Stock/TA	21.78	21.67	22.43	20.99	21.46
LT-Bank Loan/TA	7.72	8.15	7.77	6.91	7.40
Corporate Bond/TA	0.02	0.01	0.00	0.00	0.01
Reserves/TA	33.80	32.59	32.69	32.14	33.55
Minority Interests/TA	1.14	1.29	1.11	1.63	1.23
Others/TA	1.02	1.34	0.71	0.39	0.80
					64.45
EPS	0.31	0.19	0.19	0.24	0.24
TD/TA	44.43	44.82	44.87	46.85	44.777
Debt on Equity	110.46	106.54	104.85	128.77	109.97

Table 11. Key Issues for the Automobile Industry under the WTO Agreement

Issue	Current status	Agreement proposals
Import tariffs	80–100% on passenger automobiles; as low as 9% on some other vehicles	Reduced to 25% for passenger automobiles by July 2006. Overall average cut to 10% by 2006.
Import licensing requirements	Quotas vary by year on number and value of imported vehicles; 27,000 vehicle import licenses issued in 1999	Raised limit to $6 billion worth of imports on accession, 15% annual growth until elimination in 2005
Local content requirements	Various incentives to speed use of domestic components suppliers	Elimination of local content requirements on accession
Import arrangement rights	Foreign enterprise cannot directly import vehicles	Import rights granted within 3 years of accession
Distribution, retail, after sales service	Automobile manufacturers must use Chinese distributors to sell their vehicles, and domestic firms to service them	Distribution, sales and service rights for foreign firms phased in over three years
Finance	Chinese consumers have difficulty financing vehicle purchase using domestic bank loans	Non-bank foreign firms can provide unrestricted automobile financing on accession

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