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WORKING CAPITAL PRACTICES AND FINANCING CONSTRAINTS IN OMANI JOINT STOCK COMPANIES

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ABSTRACT

Earlier studies on joint stock companies identified that a high percentage of Omani joint stock companies are financially constrained. These earlier studies were based on the Kaplan and Zingales measures for measuring financing constraints – which are low dividend payout, high debt equity ratio, positive real sales growth and low interest cover ratio.

The present paper tries to identify to what extent the financing constraint can be explained by the working capital practices of these companies. Using data published by Muscat Securities Market the paper analyses working capital behaviour of Omani joint stock companies for the period from 2004 to 2006. The paper first tries to identify whether poor working capital practices is the real reason for symptoms of financing constraints exhibited by these business firms. It next tries to argue that that better working capital management practices such as better management of inventory and accounts receivables may be able to solve the financing constraint problem.

JEL classifications: G31, G32, D92, E22

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INTRODUCTION

Financing constraints is a well researched topic and there is large amount of empirical literature in accounting, economics and finance which has examined the relation between financial constraints and corporate investment. There are also many studies which have examined the relation between financial constraints and stock returns, financial development etc. However there are few empirical studies on the relationship between working capital and financing constraints since the publication of a seminal paper by Fazzari & Petersen in 1993. The central theme of the present paper is that evidence of financing constraints seen in Omani joint stock companies may be due to excessive investment in working capital. In a recent paper Bushman, Smith & Zhang (2008) discuss the topic of working capital in the context of financing constraints, but the focus of the Bushman *et al*., (2008) paper is not on whether working capital investment causes financing constraints but to say that documented evidence on investment-cash flow sensitivities are driven by the fact that primary cash flow

measure used in the literature embeds not only cash flows but also changes in working capital. The Bushman *et al*., (2008) paper concludes that research studies which use the investment – cash flow sensitivity approach to study financing constraints should be seriously questioned. Although the focus of the Bushman *et al*., (2008) paper is completely different from the direction of the present paper, the Bushman *et al*., (2008) paper provides valuable information on the metrics to be used for measuring working capital. Non cash working capital or working capital investment component (also called WCACC – working capital accruals – by Bushman *et al*., 2008) which primarily consists of near term inventory investment and accounts receivables should be an important metric for studying the relationship between working capital and financing constraints.

PAST LITERATURE ON FINANCIAL CONSTRAINTS

There is a large body of literature on the topic of financing constraints focusing on different aspects of this topic including alternate methods of measuring and identifying financing constraints among business firms, cash flow sensitivities as indicators of financing constraints, relationship between stock returns and financing constraints, impact of economic development and financial liberalisation on financing constraints experienced by firms etc.

Hubbard and Petersen (1988) published a seminal paper on estimating financing constraints in 1988. Since then a large number of empirical research papers (Ghosh, 2006) have been published on this topic. Kaplan and Zingales (1997) in a study published in 1997 classify firms into discrete categories of financial constraint and relate these classifications to accounting variables. Lamont, Polk & Saa-Requejo (2001) constructed a KZ Index of financial constraint using the accounting variables suggested by Kaplan & Zingales (1997). The KZ Index is an indicator of the level of financial constraint under which a firm is operating, and higher the index the more constrained is the firm financially. Lamont, Polk & Saa-Requejo (2001) use the KZ Index to study the linkage between financial constraints and stock returns. Beck, Demirguc-Kunt, Laeven & Maksimovic (2004) looked at the determinants of financing obstacles in an empirical study spread over 80 countries, and conclude that institutional development is the most important country characterisitic explaining cross country variations in financing obstacles.

As mentioned earlier the 1993 paper by Fazzari & Petersen is one of the first papers on working capital and financing constraints. A very recent paper on the same topic is by Bushman, Smith & Zhang (2008).

CONCEPTUAL FRAMEWORK

This section looks at the conceptual framework on which the present study is based. The central purpose of the study is to look at the relationship between financing constraints faced by a firm and its need for working capital financing.

First we look at the meaning of the word financial constraint. Firms which are growing year on year due to increasing sales may experience financing constraints if they are unable to secure the funds required to finance the growth in sales. One would expect that growing sales imply higher investment in production capacity, higher levels of inventory, more accounts receivables and a general increase in the assets of the business to support the growth in sales. Fixed asset investment, inventory and receivables all imply a need for more funds. The first source of finance is naturally internally generated funds from plough back of profits generated from higher sales. If firms are able to access external finance at reasonable cost, especially equity finance, then they would not face the problem of lack of funding. However if external financing is difficult, costly or the firms managers are reluctant to raise new equity finance, then the firm is likely to face financing constraints.

Based on methods suggested by Fazzari, Hubbard and Petersen (1988), Kaplan & Zingales (1997), and Lamont, Polk & Saa-Requejo (2001) we classify a firm as financially constrained if it has a positive real sales growth, a high debt ratio and a low dividend payout ratio. Businesses with negative real sales growth may be in financial distress but are not considered financially constrained. A firm with positive real sales growth needs additional funds to finance increasing sales, if external equity financing is difficult, and if it is already having a high debt ratio, it necessarily has to depend on internally generated funds which would lead to a policy of high level of retained earnings resulting in low dividend payout.

Using basic accounting identities, working capital can be disaggregated as

$$WC = CA - CL \tag{1}$$

$$= (CASH + INVT + RECVBLS) - CL \tag{2}$$

$$= (CASH + INVT + RECVBLS) - (STTBB + PAYBLS) \tag{3}$$

Where WC is working capital, CA is current assets, CL is current liabilities, CASH is cash and bank balances held by the firm, INVT is inventory investment, RECVBLS is accounts receivables and prepayments, STTBB is short term bank and non bank borrowings, and PAYBLS is accounts payables and accruals.

The disaggregation of the working capital allows us to reason that increase in working capital requirements of a firm can lead to financing constraints if there is an increase in inventory investments and increase in accounts receivables. However increase in cash holding by the firm cannot result in financing constraints, as the higher levels of cash can always be used to finance the increasing sales growth or to lower the debt equity ratio or to pay dividends. Financing constraints by definition are experienced by firms which are growing year on year, that is, are experiencing real sales growth but are facing difficulties in acquiring additional funding to finance the sales growth and are therefore unable to pay dividends although they are making profits, and are resorting to higher levels of leverage by increasing debt equity ratios.

Increase is working capital due to increase in cash (but without increases in inventory and receivables) cannot lead to financing constraints as the available cash can be used to finance additional inventory, finance new receivables or to pay cash dividends or to payoff existing debt, thereby reducing debt equity ratios.

The metrics therefore which need to be empirically examined while looking at the question 'whether financing constraints are due to increased working capital requirements", based on the methodology suggested by Bushman, Smith & Zang (2008), are inventory investment and investment in accounts receivables by firms. Using this conceptual framework, we expect that financially constrained firms will exhibit higher levels of inventory, higher levels of accounts receivable, will have lower levels of cash. In this study we measure inventory investment using number of days of inventory held, and higher the number of days of inventory the higher is need for funds to finance the inventory. Similarly, accounts receivable is measured using "average collection period (in days)", and higher the collection days the more is the need for funds to finance accounts receivable and therefore the possibility of a firm facing a financing constraint.

DATA AND METHODOLOGY

Financial statement data published by Muscat Securities Market in *Shareholders Guide 2007* was used to identify firms which can be categorised as financially constrained or not constrained. Years 2004, 2005 and 2006 data was used for the purpose of this study.

Five metrics used in this study to look at the working capital financing requirements are: non-cash working capital investment (WCACC), inventory turnover (number of days), average collection period (number of days), cash & bank balances to assets and current ratio (current assets divided by current liabilities).

A financially constrained firm is defined as one with positive real sales growth, high debt and low dividend payout. Firms with more than 33% debt to capital ratio are classified as high debt. (Book value leverage is used here. Total capital is sum of debt and equity). Firms with less than 20% dividend payout (dividends to earnings) are classified as low dividend payout.

There are many reasons for using 33% debt to total capital ratio. A 33% debt to capital ratio indicates a one is two debt equity ratio which is just appropriate and acceptable by many bankers and finance experts. Rajan and Zingales (1995) study finds that 33% is the median debt ratio using book values. Another reason for 33% was that sample checking of financial statement data reported by Omani firms indicated that as the debt ratio goes beyond this figure interest cover becomes very low.

The word low dividend payout is difficult to define. Unlike in other countries stock repurchase is a rare phenomenon in the Oman securities market. Further trading is thin in many stocks. Shareholders typically like high dividend payouts, which may

be at variance with the experience in many other countries. Personal taxes are zero[1] and therefore the argument against dividends based on tax considerations such as income tax and capital gains tax is not relevant in the Omani securities market. Based on the study by La Porta et.al (2000) which reported that sample median dividends to earning ratio in OECD countries is 30.02%, companies with less than 20% dividend are reported as low dividend. However, more than ninety percent of the companies which are classified as low dividend in this study actually paid zero dividends. In fact the results of the study would not vary much had we adopted zero dividend as the definition of a low dividend paying company.

As mentioned earlier data published by the Muscat Securities Market (the main and only stock market in the Sultanate of Oman) was used for the purpose of the study. The *Shareholders Guide 2007* published data related to 128 companies. Of these 89 companies which were classified as "Industry" and "Services" were selected for the present study. The other companies are either banks, insurance companies or other financial institutions and were not deemed to be suitable for the study. Out of the 89 companies, data related to three companies is either not fully available or incomplete.

EMPIRICAL RESULTS

Financing Constraints: Earlier Evidence from Oman

Before examining the question whether financial constraints exhibited by Omani joints stock companies are due to higher levels of working capital financing, we first need to ask "Is there evidence of financing constraints" among Omani firms. Evidence drawn from an recent study by the present author is first presented below:

Excel was used for sorting companies into financially constrained and not financially constrained. For the purpose of sorting the "if condition" in excel was used to specify a company as being in either state "1" or state "0" based on the cut off point for that characteristic.

A company with debt ratio more that 33 per cent was specified as being in state 1 and a company with debt ratio less than 33 per cent was specified as being in state 0. Similarly a company with positive real sales growth is specified as being in state 1 and negative sales growth as being in state 0. A firm with dividend payout less than 20 percent is in state 1 and otherwise 0.

The results of first level sorting are reported in Tables 1, 2 and 3.

Table 1
Real Sales

	Sum of Real Sales
Growth	*Total*
Total	73

Table 2
Real Sales & Debt Ratio

	Sum of Real Sales Growth
Debt Ratio	*Total*
Low Debt 0	16
High Debt 1	57
Grand Total	73

Table 3
Real Sales & Dividend Payout

	Sum of Real Sales Growth
Dividend Payout	*Total*
High Dividend 0	31
Low Dividend 1	42
Grand Total	73

Table 4
Real Sales, Dividend Payout, Debt Ratio

		Sum of Real Sales Growth
Dividend Payout	*Debt Ratio*	*Total*
High Dividend 0	Low Debt 0	12
	High Debt 1	19
High Dividend 0 Total >	>>>>>>>>>	31
Low Dividend 1	Low Debt 0	4
	High Debt 1	38
Low Dividend 1 Total >	>>>>>>>>>	42
Grand Total		73

Table 1 shows that 73 companies out of 86 reported positive real sales growth during 2005 – 2006. Of these 73, the number of companies paying low dividend were 42. Out of these 42 companies which reported positive real sales growth and were low dividend paying, 38 also reported a high debt ratio. These 38 are therefore identified as being financially constrained.

The other companies are not financially constrained based on the KZ definition. A company with negative sales growth does not need additionally funding beyond what it already has. The problem for such companies is probably a need to improve sales (and may be profits) rather than being a finance related problem. Of the 73 firms with positive sales growth 16 reported a low debt ratio. These firms are not regarded as being financially constrained, as they have the leeway and capacity to borrow if they need finance. As reported in Table 3, 31 of the 73 firms pay high dividend. These 31 firms are not regarded as financially constrained as they have the choice of reducing dividend and increasing retained earnings if they need funds for financing sales

growth. However this argument is probably not truly applicable to firms in Oman because the local capital market environment is such that they there is a lot of investor pressure to pay high dividends.

Table 5
Averages

Averages	*Real Sales Growth (%)*	*Div Payout (%)*	*Debt Ratio (%)*
Financially Constrained Firms	38.1	0.7	75.9
Not Financially Constrained Firms with Positive Real Sales Growth	19.4	57.8	41.4
Not Financially Constrained Firms with Negative Real Sales Growth	–17.1	40.0	64.2

Average values for the firms in different groups are reported in Table 5. The average figures futher support the contention of the present paper. Financially constrained firms as a group reported the highest average sales growth at 38.1% per annum a figures much higher as compared to the other group. Also the financially constrained group reported a dividend payout of less than 1% on an average, and an average debt ratio of 75.9%. The average figures clearly indicate that financially constrained firms, may suffer from lack of sufficient financing to support their fast sales growth.

The percentage of financially constrained firms among those reporting positive real sales growth in Oman in 2006 based on the results reported in Table 4 is 52% (38 out of 73). This figure is very high compared to Kaplan & Zingales (1997) results. Kaplan & Zingales find that the fraction of the firms classified as financially constrained varies from 35% in 1974 to 6% in the early 1980s. Even allowing for misclassification or reclassification if one does not strictly agree with the cut offs used in the present study, the conclusion is that the fraction of financially constrained firms is high among Omani joint stock companies.

Working Capital Investment and Financing Constraints: Empirical Evidence

In this section we will try to empirically examine whether companies exhibiting financing constraints also show evidence of higher levels of non cash working capital or working capital investment component. Following the methodology suggested by Bushman, Smith & Zhang (2008) we define working capital investment component, WCACC (working capital accruals), primarily as near term inventory investment and accounts receivables. Instead of using a ratio for measuring WCACC, in this study we measure WCACC in number of days.

$$WCACC = INVTRN\_DAYS + AVGCOLL\_DAYS \quad (4)$$

Where INVTRN_DAYS is inventory turnover measured in days (calculated as inventory divided by cost of sales multiplied by 365), AVGCOLL_DAYS is average

collection period measured in days (calculated as accounts receivable divided by sales multiplied by 365), and WCACC is non cash working capital investment measured in days.

If there is evidence that working capital financing requirements result in financing constraints we should find that financially constrained firms would have a significantly higher level of WCACC as compared to non-constrained firms.

Table 6
Working Capital Investment & Financing Constraints

	Financially constrained firms	*Not financially constrained firms with positive real sales growth*	*Not financially constrained firms with negative real sales growth (probably financially distressed)*
Number of Firms	38	35	13
Avg. Real Sales Growth (%)	38.1	19.4	–17.1
Avg. Dividend Payout (%)	0.7	57.8	40
Avg. Debt Ratio (%)	75.9	40	64.2
INVTRN_DAYS Inventory Turnover (in days)	109.3	58.9	135.5
AVGCOLL_DAYS Average collection period (in days)	91.04	82.3	156.9
Cash to Assets Ratio (%)	6.8	8.6	16.2
WCACC	200.3	141.2	292.4
Current Ratio	1.088	2.62	3.94

Table 6 shown above gives details of results obtained by the pivot table classification procedure. Clearly WCACC – non cash working capital is much higher at 200.3 days for financially constrained firms compared the 141.2 days for non-constrained firms. We can therefore conclude that a major reason for facing a financing constraint by the 38 (out of 73) joint stock companies may be the high level of WCACC – non-cash working capital investment component – which primarily consists of inventory and accounts receivable investment.

Firms with negative sales growth are by definition not financially constrained as they are not suffering from problems of lack of finance but may be financially distressed and are therefore outside the frame of reference of the present study (Although financially distressed firms are outside the scope of the present study, the results in Table 6 do seem to indicate that financial distress and high WCACC are closely linked, probably declining sales are resulting in higher inventories, dead stock and illiquid accounts receivables).

The higher WCACC for financially constrained firms is due to both a higher investment in inventory as well higher accounts receivable investment. However based on the figures we may conclude that higher inventory investment is a more important reason for the higher WCACC. Inventory investment of financially constrained firms is at 109.3 days almost double the figure of 58.9 days for non-constrained firms with

positive sales growth. The table also shows that financially constrained firms have lower investment in cash as indicated by cash to assets ratio.

Current ratio of the 38 financially constrained firms is much lower at 1.088, compared to the 35 non-constrained positive sales growth firms which reported an average current ratio of 2.62. Current ratio is an indicator of the liquidity of the firm and a low current ratio, especially if it near to or less than 1, implies that the firm is experiencing liquidity problems. The empirical results reported in Table 6 do seem to indicate that financially constrained firms also suffer from liquidity constraints as indicated by the very low level of their current ratio, and as expected non-constrained firms with positive sales growth do not face liquidity problems given that their current ratio is high as 2.62.

SENSITIVITY RESULTS

Using the results arrived at in the previous section a sensitivity model was developed to test the impact of changes in working capital on the financing needs of a firm. The model has two modules, one for a financially constrained firm and another for a non-constrained firm.

The inputs to the sensitivity model are the numbers we derived earlier, that is, 109 days inventory turnover period, 58 days collection period, 200 days WCACC and a current ratio of 1. 088 for a typical financially constrained firms in Oman. The sensitivity model allows us to estimate the change in financing needs for a additional 100 Rial increase in sales. The sensitivity results indicate that every 100 Rial increase in sales would result in additional financing requirements to the tune of 47.5 Rials for a financially constrained firm.

The inputs for a non constrained firm are 59 days inventory turnover period, 82 days collection period, 141 day WCACC and 2.62 current ratio. The sensitivity results indicate that every 100 Rial increase in sales would result in additional financing requirements of 34.5 Rials for a non constrained firm. We can therefore conclude that the financing requirements of a typical financially constrained firm in Oman are 38% percent higher than a typical non-constrained firm for every rial increase in sales.

We should combine this result with the fact that financially constrained firms recorded average annual sales growth of 38 per cent compared to the 19 per cent of non-constrained firms, implying that the demand of financially constrained firms for working capital financing is much higher than that of non-constrained firms. The sensitivity results also indicate that financially constrained (which reported a current ratio of 1.088), are much more dependent on supplier credit (payables financing) to fulfil their financing requirements compared to non-constrained firms (which reported a current ratio of 2.62). It appears that not only are financially constrained firms in Oman in need of higher working capital finance but they are also heavily dependent on supplier credit possibly due to non-availability of long term equity and debt financing.

CONCLUSION

The results of the empirical analysis point to some clear conclusions. More that fifty percent of Omani joint stock companies with positive real sales growth suffer from financial constraints, that is, the problem of lack of adequate funds to run the business and to expand the business as evidenced by the fact that these 38 companies have high debt to equity ratios and pay little or no dividend.

A major reason for facing a financing constraint by these 38 (out of 73) joint stock companies may be the high level of WCACC – non-cash working capital investment component – which primarily consists of inventory and accounts receivable investment. The relatively low current ratios reported by the financially constrained firms also indicates that they may be facing liquidity problems.

The sensitivity model results indicate that that the financing requirements of a typical financially constrained firm in Oman are 38% per cent higher than a typical non-constrained firm for every rial increase in sales.

We conclude therefore by asking the question " whether poor working capital practices is the real reason for symptoms of financing constraints exhibited by these business firms?" Better working capital management practices such as better management of inventory and accounts receivables may be able to solve the financing constraint problem. We can obtain a definitive answer only by doing a detailed sample survey to examine the working capital, inventory and accounts receivable practices of the financial constrained firms and comparing them with the non-constrained group.

However the results do indicate that in view of the large number of firms facing financing constraints there is need for improvement in inventory management, and need for better accounts receivable collection practices among Omani listed companies. This in turn will bring about a significant improvement in the financial health and growth of Omani joint stock companies. The results of the study also imply that banks should introduce and propagate products which reduce accounts receivable investment by Omani firms.

NOTES

1. Not only are personal taxes zero but also there is no system of filing tax returns by individuals. However corporate tax rate is very much in existence although it low.

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