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Submission date: 11-Oct-2022 08:55PM (UTC+0700)

Submission ID: 1922539506

File name: 26_2021_DOES_FEMALE_TOP_MANAGERS_DEBT.pdf (347.72K)

Word count: 8163

Character count: 44638

-RESEARCH ARTICLE-

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—Abstract—

This study seeks to investigate the gender differences in debt preference and whether firms led by female top managers shift their debt preferences when they experience rapid sales growth. The research sample consists of 18,683 firms in 98 developing countries. The data is obtained from the 2016-2018 World Bank's productivity and the investment climate survey. This study uses the robust standard error to test the relationships among variables. The results show that female top managers have a lower preference for using debt as a financing source, especially for capital goods acquisitions compared to male top managers. The findings suggest that women-led firms do not shift their debt preference even when they experience high sales growth. This study is useful for policymakers who want to develop regulations regarding female managers' decisions.

Citation (APA): Sunardi, S., Damayanti, W.T., Supramono, S. (2021). Does Female Top Managers' Debt Preference Shift? If Firm Experiences Sales Growth. *International Journal of Economics and Finance Studies*, 13 (1), 90-109. doi:10.34111/ijefs.202112226

related to the debt financing as well as their behavior in case of high sales growth towards debt financing.

Keywords: debt, gender, sales growth, female top manager, financial sources

JEL Classification: G31; G3

1. INTRODUCTION

Financial literature has documented the critical role of financing for financial performance extensively. Empirical evidence has shown that better-financed firms will grow more rapidly. Financial support also increases productivity. By contrast, firms experiencing financial constraints report lower growth and less innovation (Pellegrino & Savona, 2017). One source of corporate financing is debt. Even though debt offers several benefits, especially tax-shield, some firms try to maintain low debt or even use zero debt in their capital structure. It seems that the existing capital structure theories still cannot explain this phenomenon to any satisfactory extent (Ghisetti, Mancinelli, Mazzanti, & Zoli, 2017). Therefore, this study highlights this particular issue by analyzing the role of gender as a top managers' characteristic.

Financing involves critical decision-making. A good financing decision results in long-term benefits to the organization. One wrong financial decision can put the organization's position at stake. Perceptive and informed decision-making plays a crucial role towards the future of any organization. It is colloquially said that managers speak *vide* their decisions. This study seeks to find out whether gender differences impact the process or outcomes of decision-making or not? There are a number of past researches which propose that inducting female members in the top management of the organization brings a positive change in a firm's performance (Campopiano, De Massis, Rinaldi, & Sciascia, 2017; Giraldez-Puig & Berenguer, 2018; Yang, Riepe, Moser, Pull, & Terjesen, 2019). These results trigger a larger debate on whether female managers are good decision makers or not. This study will highlight two aspects of decision-making; debt financing decisions and sale (Huang & Kisgen, 2013). While there are some forthcoming trends in terms of the inclusion of females in firms at top position, the rate of inclusion remains slow, particularly in developing countries is not very high. The business community is showing their reservations in this regard. The induction of females as top members of the firm will result in a decrease in gender gap in professionalism. The theory of Upper Echelons states that the managerial characteristics of any firm have a strong impact on decision-making and performance (Setiawan & Navianti, 2020). With women holding the top management of the firm, there may be strong implications of the gender difference on the firm policies and performance as there is a strong relationship between the firm performance and the top management (Campopiano et al., 2017). The existence of a female member in the top echelon of the

company brings new perspectives in decision making. The role of women managers in comparison with their male counterparts is more effective and is seen as more suitable for contributing to better corporate governance. [Moreno-Gómez, Lafuente, and Vaillant \(2018\)](#) conduct a particular study on the relationship between gender diversity, leadership, and firm performance. The results of the study propose that there is a positive relationship between gender diversity and the firm's overall performance. However, opposite to this, past studies propose that there is a number of reasons that induction of female members as managers will result in lowered growth of company such as gender differences in confidence level, decision making skills, long term decision making or short term, business size and age of firm etc.

Financing is the key to business success. Through the course of his career, a manager takes a number of risky decisions regarding financing. In the case of decision-making regarding financing via debt women are seen as less confident in comparison to men as they prefer to take less risky decisions. Although they are generally considered more suitable in terms of short-term financing, in case of long term, the results are vice versa. This raises the other question of whether the level or type of confidence plays any role in effective, informed and strategic decision-making. [Li, Xu, Gill, Haider, and Wang \(2019\)](#) conduct a specific study on confidence and decision-making relationship and proposes that the level of confidence is a relatively low in females in comparison with a male. One of the basic reasons for female managers to avoid risk-taking behaviour is that they avoid any kind of financial problems that arise as a result of their decisions. The concept is also supported by [Doan and Iskandar-Datta \(2020\)](#) who state that female managers prefer internal sources of financing in comparison with the external financial, particularly debt financing. For the growth of any business, the only factors which act as its financial backbone are sales. Firms put their maximum efforts to maximize their sales. There is a positive association between the sales and purchase of any firm and the gender differences' impact on decision-making. The higher the sales will be, the more the firm will prefer debt financing to get more strength in terms of growth.

Do gender differences impact debt financing decision-making?

Gender difference in top management can lead to preferences shifts in choice of financing sources for business investments ([Zalata, Ntim, Aboud, & Gyapong, 2019](#)). For example, prior studies find that female top managers favour internal financing for capital goods over debt. However, female top managers' preferences may be likely to shift under certain circumstances, such as when these managers lead fast-growing firms that require extra financing not just for operating capital but also for fixed or capital assets ([Moreno-Gómez et al., 2018](#)). Due to substantial financing needs, especially for investment in capital goods, female top managers can no longer rely on internal

financing but have to consider increasing their debt ratios as financial sources (Gao, Ping, & Liu, 2020).

The objective of this study to (a) empirically examine gender-based debt preference as a financial source for investments and (b) examine the role of sales growth in shifting gender-based preference for debt use. The data from the World Bank's Productivity and the Investment Climate Survey covering 98 developing countries has been used to meet the purposes of this research. This study is expected to contribute to financial source preference literature in at least three ways. First, while gender difference cut across various disciplines and subjects has been extensively studied, it is remain largely unexplored in corporate finance. Second, the study uses business attributes such as sales growth that were frequently used as independent variables to changes in gender-based preferences for financial sources. Third, this research involves all types of business entities, ranging from sole proprietorships to listed firms in developing countries. Meanwhile, some previous studies exclusive use, and are relevant to publicly listed firms.

The next section reviews the relevant literature on the relationship between debt ratio, gender in top management and sales growth as the basis for formulating several hypotheses. This is followed by a third section which outlines the research methods used during the present study. The fourth section presents the results of the analysis and interpretation of the results according to the theoretical framework mentioned earlier. Lastly, this paper puts forth a number conclusions, recommendations and implications to assist the work of future researchers and scholars

2. Literature Review

Various theoretical approaches ranging from trade theory to POT, seek to understand the role of debt as a financing source (Mun & Jang, 2017). For example, based on the trade-off theory, debt positively affects firm performance because it can reduce tax burdens. However, increased debt that exceeds financial capacity may have a detrimental effect on firm performance because it can cause financial distress and even bankruptcy. Meanwhile, based on the agency cost theory, debt can be used to encourage managers to prioritize cash flows for paying debts over satisfying their own interests (Lin, Chen, Wang, & Tian, 2017). Based on the information asymmetry, the signalling theory suggests that the disclosure of corporate debt is arguably a signalling mechanism on managers' positive evaluation of business prospects (Moratis, 2018). Although the theories outlined above suggest leverage as a financing source, not all firms exploit debt's advantages fully or significantly. In this respect, debt preference is likely related to decision-makers' attributes, including gender. However, to date, only a few studies explore whether female top managers use lower debt ratios than male top managers.

The involvement of management is primarily crucial for increasing the fixed assets of companies (Ye, Zhang, & Rezaee, 2010). In this context, the management has different shapes and natures to support their financial decisions. Therefore, the role of gender is significantly important and describes the level of conservativeness and overconfidence among them (Benjamin & Biswas, 2017). A more risky attitude among female top managers' attitude usually negates the financial decisions, however in the context of short term debt, females are more preferable (Rossi, Cebula, & Barth, 2018). The reinforcing and flexibility of capital structure are prominent among the female executives which are less overconfident. There is always a reluctance among the financial decision making especially in the decision of fixed assets purchasing. Certain female top managers enjoy lower rates of debts that are raised from external sources. The decision, in the context of attaining the fixed assets, is dependent on the top-level management because of the purchasing on a debt basis. Female managers are more conservative about debt financing but the benefits of debt financing are more feasible than on a prompt payment basis (Terjesen, Couto, & Francisco, 2016). The inverse relation of female executives induces a certain level conservatism but poses a much-diversified approach to debt financing for the fixed assets (La Rocca, Neha, & La Rocca, 2020).

The effective governance that is managed internally significantly eliminates debt financing problems (Kim & Nguyen, 2021). When there is a reduction in financial means, debt financing is preferably needed to reduce the risks of tax evasions. Female managers usually improve monitoring functions and have a larger contribution toward the fixed asset debt financing. The elements of confidence and compliance are key in financial decision-making. A significant role of female managers and CEO induces the influence of financial decision-making that relates with the compared short term debt with long term debts. Even though, the relationship between financial top managers and their decision about fixed assets debt financing contributes significantly and positively to the growth of organizations. Gender is an important factor for the decision-making in an organization and financial causes are also prevalent on the gender role. The perception of debt financing among the organization is positively managed by gender confidence. Therefore, gender differences may be more prominent in the financial decision making with the importance of female managers is pronounced due to confidence. In terms of business policies, the female's role towards = debt financing for fixed assets is clear due to the working and business environment (Shahdila-Shahar, Ahmad, & Jaafar, 2019). While promoting gender equality, females are more conscious about the decision-making for financial debts toward the fixed assets.

Numerous debt and credit controlling organizations emphasize the role of financial decision-making. In this context, positivity is also an important element because of the

role of females in the representation of financial decisions. At the administrative and managerial levels, the female presentation dominates due to the vast reservations toward debt financing over fixed assets (HO & DAO, 2020). The fiscal behavior of organization and representation of female is significantly related with each other. This relationship positively demonstrates the considerable role of females and its adjustment in business politics to tackle negative implications. While examining the influence of female top managers over debt financing, the financing preferences could not be omitted. Therefore, the business size and age are also important elements that help the decision-maker analyze individual or firm attitude toward risk prevalence. This prevalence is positively controlled by female managers which preserve the debt financing impacts over the company growth and profits (Suzuki & Avellaneda, 2018). There are many growth seekers in the organization and female managers are one of them. Therefore, the decision-making power of female managers is more convenient for the debt financing of fixed assets.

Gender-based debt preferences can be explained by the demand and supply sides. From the demand side, women are typically less risk-tolerant, conservative, and less optimistic than men (Naomi, 2018). Thus, female top managers prefer low debt ratios for their firms' sustainability. Furthermore, female top managers find it more difficult to secure bank loans as they worry that banks will reject their loan applications and not make decisions independently. Meanwhile, from the supply side, the banking sector is discriminatory (Yacus, Esposito, & Yang, 2019). For example, Chinese banks tend to ask for more requirements or greater collateral for women-led firms than men-led firms (Usman, Farooq, Zhang, Makki, & Khan, 2019). Further, Italian banks are also reported to demand higher interest rates. Based on the above arguments, this study formulates the following hypothesis:

H1: Female top managers prefer lower debt ratios as a financing source than male top managers.

When firms experience high sales growth, female top managers' preferences towards debt is likely to shift. Sales growth requires additional financing for operating capital, including adequate inventories, to mitigate risks (Hechavarria, Bullough, Brush, & Edelman, 2019). Previous studies have confirmed that sales growth is positively associated with increased needs for operating capital. Firms experiencing sales growth often require increased investments in capital goods which arguably helps firms improve their production or services and operate in a more cost-efficient manner. However, investing in capital goods frequently requires a large amount of financing (Uzuegbunam & Uzuegbunam, 2018). Thus, firms may no longer only rely on internal financing but seek external debt financing alternatively. This argument is also consistent with previous

studies suggesting that sales growth positively affects leverage. Sales growth, therefore, can shift female top managers' preferences from lower debt ratios to higher ones.

Among the perspectives of female top managers for debt financing, the social norms are also considerable (Datta, Doan, & Toscano, 2021). Gender equality is the most dominating factor among organizations with most organizations adhering to religious norms (Kim & Nguyen, 2021). Some organizations prefer debt financing according to their religious or social norms and the role of female top managers among them is prominent (Rao & Kumar, 2018). In the determination of sales growth, various organizational factors must be considered in order to perform better. While discussing gender roles in organizations, the growth of sales also convinces the female top managers to proceed with debt financing (Cai & Shi, 2019). Some restrictions are also prominent due to the financial condition and situation of organizations. The role of entrepreneurs is importantly reviewed with the association of women toward the achievement of higher growth. For the growth of organizations, the female top managers are found to be play a positive role in the decision-making of debt financing for the fixed assets (Yacus et al., 2019). Debt financing is also important in the mean of reducing the organizational constraints that could disrupt the proportion of investments. The growth of sales is directly related to the financial distress of the organization. It is upon the decision-makers whether to proceed with debt financing or not. While in terms of the importance of corporate governance factors, the female top managers could be said to be more feasible for debt financing for fixed assets (Pandey, Biswas, Ali, & Mansi, 2020).

There is a positive association between sales and purchases in an organization and all the decisions are based on gender priority among the management. Usually, the growth of sales motivates the organizations to proceed with debt financing (Cai & Shi, 2019). This debt financing varies with the investment and other sorts of fixed assets purchasing. Some strategic orientations of the sales growth are considered as prominent attention for the hike of businesses. Therefore, to ensure better outcomes of business and organizations, female top managers induce significant measures (Febriyanto, 2018). These measures comprise debt financing for fixed assets to avoid the tax implications. There are credit ratings according to the religious areas and the female role is found to be significant in debt financing. For the eradication of tax and certain other penalties, most female top managers prefer debt financing for the fixed assets (Yacus et al., 2019). This also lowers risk and reduces the covenants that belong to such organizations. Due to the positive effects of sales growth, organizations place a variety of modes for debt financing not only for the enhancement of sales but for additional purposes. In this context, the role of female top managers could not be overlooked (Giarto & Fachrurrozie, 2020). The female managers could feel more comfortable on account of the rise in sales and could decide on debt financing.

Certain strong disciplines have explored gender differences in the context of organizations and these disciplines are framed around finance studies, social psychology, and entrepreneurship theories (Dezsö & Ross, 2012). In this portion, the role of gender is explored in the context of funding in businesses and debt financing (Pandey et al., 2020). The role of female top managers could be weakened to some extent toward financial decision-making. On the other hand, the growth of sales is a positive depiction of the sound condition of organizations (Wales, Beliaeva, Shirokova, Stettler, & Gupta, 2020). This beneficial situation could help female top managers to pursue debt financing of fixed assets. A negative association of female presence in the decision of debt financing is depicted while critical measures of female top managers are found to support debt financing. This debt financing not only disrupts the modes of money or any financial intermediaries but extends the penalties and tax benefits while enumerating fixed assets purchase. Better orientation of sales growth in the organizations opens a broader scope for financial decision making. When there is a tight situation in the organization in terms of availability of funds and investment of profits, female top managers could learn to utilize the opportunity of debt financing for fixed assets.

In this regard, female top managers likely consider additional debt not as a liability but as an opportunity to improve firms' efficiency because debt offers several advantages, as suggested by the capital structure theory. Some empirical studies indicate debt's positive effects on firms' outcomes, such as profits, firm growth and firm value (Ali, Almagtome, & Hameedi, 2019; Fajaria & Isnalita, 2018). Therefore, as firms experience rapid sales growth, female top managers' debt ratio preferences will arguably be similar to male top managers (Miah, 2019). Based on the above arguments, the following hypothesis is proposed:

H2: Sales growth motivates the female top managers to prefer the higher debt ratios as a financing source.

3. Methodology

This study has examined the impact of female top management and sales growth role on the debt source of fixed assets investment. The data have been extracted from the 2016-2018 World Bank Survey. This survey explored thirteen factors for all respondent files, including regulations and taxes, corruption, crime, informality, gender, finance, infrastructure, innovation and technology, trade, workforce, firm characteristics, business obstacles, and performance. Overall, the survey involved 136,889 firms from 140 countries representing both, formal and non-formal entrepreneurs. This study discarded firms that did not acquire fixed assets in the observation years and outliers, resulting in 18,683 firms of 98 developing countries as the final sample.

In this study, the financial source for fixed asset investment was the dependent variable, while gender and sales growth were identified as the independent variables. The dependent variable (FIN) was measured by using the debts investment on purchasing the fixed assets.” Specifically, the variable was measured by accumulating the percentages of banks and non-banks investment sources. Meanwhile, gender (GEN) was a dummy variable that was equal to one if the top manager was female and otherwise, zero. Sales growth (SG) represented real annual sales growth that was measured with the percentage of changes between sales in the years before the latest fiscal year and the latest fiscal year’s total sales. Three control variables in this study were firm size, firm age, and the percentage of credit sales. The firm size (SIZE) was calculated by using the algorithm of total assets of the firm. Firm age (AGE) was calculated by subtracting 2018 (the latest observation year) with the survey year. Lastly, the ratio of credit sales (CRS) is determined based on the percentage of company sales paid after delivery. This study has developed the equation based on the available variables as under:

$$FIN_{it} = \alpha_0 + \beta_1 GEN_{it} + \beta_2 SIZE_{it} + \beta_3 AGE_{it} + \beta_4 CRS_{it} + e_{it} \quad (1)$$

Where;

FIN	=	Fixed Assets Investment (Debt Source)
i	=	Firm
t	=	Time Period
GEN	=	Gender
SIZE	=	Firm Size
AGE	=	Firm Age
CRS	=	Credit Sale

In addition, this study also developed an equation based on the available variables and also adding moderating role of sales growth:

$$FIN_{it} = \alpha_0 + \beta_1 GEN_{it} + \beta_2 SG_{it} + \beta_3 GEN * SG_{it} + \beta_4 SIZE_{it} + \beta_5 AGE_{it} + \beta_6 CRS_{it} + e_{it} \quad (2)$$

Where;

FIN	=	Fixed Assets Investment (Debt Source)
i	=	Firm
t	=	Time Period
GEN	=	Gender
SG	=	Sale Growth
SIZE	=	Firm Size
AGE	=	Firm Age
CRS	=	Credit Sale

The present study has checked the correlation between the variables with the help of a **correlation matrix**. In addition, **the variance inflation factor (VIF)** is also used to examine the multicollinearity assumption. If the figures of VIF are less than five, then there is no issue of multicollinearity and vice versa. The estimation equations for VIF are as follow:

$$R^2_Y \rightarrow Y_{it} = \alpha_0 + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + e_{it} \quad (3)$$

$$Tolerance = 1 - R_j^2 \quad VIF = \frac{1}{Tolerance} \quad (4)$$

Finally, the robust standard error has been used by the present study to investigate the relationships among the variables. This approach has the characteristic of adjusting the model's heterogeneity issues. The estimation equations for robust standard error with and without moderation are mentioned as under:

$$FIN_{it} = \beta_1 GEN_{it} + \beta_2 SIZE_{it} + \beta_3 AGE_{it} + \beta_4 CRS_{it} + \epsilon_{it} \quad (5)$$

$$FIN_{it} = \beta_1 GEN_{it} + \beta_2 SG_{it} + \beta_3 GEN * SG_{it} + \beta_4 SIZE_{it} + \beta_5 AGE_{it} + \beta_6 CRS_{it} + \epsilon_{it} \quad (6)$$

4. Results and Discussion

The present study investigates the correlation matrix to examine correlation among the variables while also examining the VIF to check the multicollinearity among the variables. In addition, the present study uses the robust standard error to test the relationships among the variables. These results are explained in detail given below:

Table 1: Correlation matrix

	FIN	GEN	SG	SIZE	AGE	CRS
FIN	1					
GEN	-.019 (0.011)	1				
SG	.028 (.000)	.016 (.025)	1			
SIZE	.106 (.000)	-.087 (.000)	-.073 (.000)	1		
AGE	.088 (.000)	-.052 (.000)	-.103 (.000)	.257 (.000)	1	
CRS	.134 (.000)	-.061 (.000)	-.067 (.000)	.173 (.000)	.140 (.000)	1

Table 1 presents the correlation between the research variables. Gender and debt ratio are found to have a significantly negative correlation ($r = -0.019$; $p = 0.011$). However, sales growth is positively correlated with debt ratio ($r = 0.028$; $p = 0.000$), indicating that firms with high sales growth tend to have high debt ratios. In addition, debt ratio is correlated with the control variables (firm size, age, and credit sales) with same directions.

The variance inflation factor (VIF) is also used to examine the multicollinearity assumption. The results of VIF have shown that the values are less than 37, indicating that there is no issue of multicollinearity. These values are mentioned in Table 2.

Table 2: Variance Inflation Factor (VIF)

	VIF	1/VIF
GEN	2.147	0.836
SG	2.074	0.736
SIZE	2.934	0.794
AGE	2.195	0.721
CRS	2.395	0.816
Mean VIF	2.365	.

The regression analysis findings in Table 3 show that female top managers prefer lower debt ratios as a financial source than male top managers ($\beta = -0.363$, $p < 0.05$). The results are qualitatively similar when the more restrictive measures of debt sources are used: bank ($\beta = -0.564$, $p < 0.05$) and non-bank ($\beta = -0.201$, $p < 0.05$). Thus, H1 is supported. The findings show that female top managers tend not to use loans to invest in capital goods and prefer internal funds, while male top managers prefer higher debt ratios. Hence, female top managers try to avoid risks because they worry that their firms will encounter financial problems that can lead to credit defaults. The findings also indicate that firms' attributes, as the control variables, significantly affect debt ratios. Specifically, service and family firms tend to have lower debt ratios. In contrast, shareholding firms, larger firms, and firms with higher credit sales tend to have higher debt ratios.

Table 4 shows that the effect of the interaction between gender and sales growth on debt ratios is negative and significant ($\beta = -0.017$, $p < 0.01$). The findings are qualitatively similar when the more restrictive measures of debt ratio based on source type are used: bank ($\beta = -0.017$, $p < 0.1$) and non-bank ($\beta = -0.011$, $p < 0.1$). The results are not in line with the second hypothesis which predicts an insignificant effect. Hence, sales growth cannot mitigate the impact of top management gender on debt ratios, and H2 is rejected.

Table 3: Results of the robust standard error

	Debt Sources		
	All sources	Bank	Non-bank
GEN	-0.363 (0.022)**	-0.564 (0.028)**	-0.201 (0.017)**
Control Variable			
SIZE	2.266 (0.000)***	2.577 (0.000)***	0.311 (0.006)***
AGE	0.085 (0.000)***	0.071 (0.000)***	0.014 (0.010)**
CRS	0.093 (0.000)***	0.090 (0.000)***	0.003 (0.248)
Adjusted R ²	0.037	0.039	0.002
F	104.571 (0.000)***	107.957 (0.000)***	4.519 (0.000)***

Note: p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

Although their firms experience rapid sales growth, female top managers do not increase debt from banks and non-banks. Female top managers likely regard debt as a liability rather than leverage for firm performance. Thus, growth in sales does not change the preferences of female top managers regarding debt so they continue to rely on internal funding sources even though their firms experience increased sales growth.

A robustness test is also performed using more restrictive sample firms (only leveraged firms), resulting in 6,433 firms as the sample. Table 5 Panel A shows that female top managers also prefer lower debt ratios ($\beta = -0.375$, $p < 0.05$). The results are qualitatively similar when more restrictive measures of debt ratio are used: banks ($\beta = -0.015$, $p < 0.05$) or non-banks ($\beta = -0.020$, $p < 0.05$). Further, Table 5 Panel B shows that the effect of the interaction between gender and sales growth to debt ratio has a negative and significant direction ($\beta = -0.006$, $p < 0.05$). The results are similar when the more restrictive measures of debt ratio are used: banks ($\beta = -0.003$, $p < 0.5$) and non-banks ($\beta = -0.004$, $p < 0.5$). Overall the robustness test supports the results of the main analysis. Therefore, it confirms that female top managers prefer lower debt ratios as a financial source than male top managers, and female top managers prefer internal financial sources to debt. Meanwhile, male top managers prefer higher debt ratios. Furthermore, the test results for the moderation effect also consistently show that sales growth cannot mitigate the effect of top manager's gender on debt financing.

Table 4: Results of the robust standard error with moderation

	Source of debt.		
	All sources	Bank	Non-bank
GEN	-0.438 (0.052)*	-0.636 (0.055)*	-0.198 (0.024)**
SG	-0.008 (0.088)*	0.011 (0.054)*	0.003 (0.015)**
GEN*SG	-0.017 (0.006)***	-0.017 (0.050)*	-0.011 (0.092)*
Control Variable			
SIZE	2.567 (0.000)***	2.867 (0.000)***	0.300 (0.013)**
AGE	0.087 (0.000)***	0.072 (0.000)***	0.015 (0.007)***
CRS	.091 (0.000)***	0.088 (0.000)***	0.003 (0.000)***
Adjusted R ²	0.037	0.039	0.002
F	81.667 (0.000)***	84.335 (0.000)***	4.346 (0.000)***

Note: p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

5. Discussions and Conclusion

This study seeks to investigate the gender effect on debt preference and determine whether firms led by female top managers shift their debt preferences when they experience rapid sales growth. The research sample consists of 18,683 firms in 98 developing countries. The data is obtained from the 2016-2018 World Bank's productivity and investment climate surveys. This study has used the robust standard error to test the hypotheses regarding the relationships among variables. The findings show that female top managers tend not to use loans to invest in capital goods and prefer internal funds, while male top managers prefer higher debt ratios. Further, the results support the argument that women are reluctant to use debt as they are perceived to be more risk-averse (Doan & Iskandar-Datta, 2020; Wang, Cai, Zhu, & Deng, 2020). In addition, the results of current study show that the female top managers are not willing to use loan to invest in fixed assets. These results are similar to the outcomes of the past study such as Chen, Huang, and Ye (2020) who also claim that female top managers are not confident enough and also not willing to take risky decisions, explaining why they do not use loan sources to invest in fixed assets.

Table 5: Summary of robustness test results

	Source of debt		
	All source	Bank	non-bank
Panel A. Hypothesis Testing 1			
GEN	-0.375 (0.046)**	-0.015 (0.023)**	-0.020 (0.017)**
Adjusted R ²	0.21	0.22	0.06
F-test	0.000***	0.000***	0.000***
Panel B. Hypothesis Testing 2 (With moderation)			
GEN	-0.314 (0.076)*	-0.015 (0.038)**	-0.017 (0.034)**
SG	-0.039 (0.004)***	-0.050 (0.000)***	-0.026 (0.054)*
GEN*SG	-0.006 (0.044)**	-0.003 (0.049)**	-0.004 (0.049)**
Adjusted R ²	0.022	0.023	0.006
F	0.000***	0.000***	0.000***

Note: p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

Moreover, the results show that female top managers fear to invest in the debt source of investment and this outcome corroborates the findings of [Li et al. \(2019\)](#) who also argue that female managers are not confident and are unable to take extra risk and tend to discourage any investment in risky projects, accounting for why they avoid investing in debt source of financing. Hence, female top managers try to avoid risks because they worry that their firms will encounter financial problems that can lead to credit defaults. Additionally, female top managers arguably lack confidence in obtaining debt financing. Although their firms experience rapid sales growth, female top managers do not increase debt from banks and non-banks. This is contrary to the results of previous studies conducted by [Ullah, Majeed, and Fang \(2021\)](#) and [Xu, Li, Li, and Liu \(2019\)](#) which show that sales growth has the effect of increasing debt. The results of the present study also investigate that sales growth of an organization is not a motivating factor for female top managers to take the risk of investment in debt source of financing. This finding is matched with the results of another previous study conducted by [Muthama and Warui \(2021\)](#) who also demonstrate that female top managers are lacking in confidence in that even growing level of sales growth could not motivate them to take risky decisions and take loans to invest in fixed assets. In addition, the results relate to the female top managers' decision to avoid debt financing even in case of high sales growth are also in line with the outcomes of the study such as [Harris, Karl, and Lawrence \(2019\)](#) who also

investigated that the sales growth and other positive factors in the organization could not motivate the female top managers to take risky investment decision and could not motivate them towards debt financing. Finally, the results show that sales growth could not motivate the female managers towards debt investment and past studies also support this argument such as one by [Luo, Xiang, and Huang \(2017\)](#) who also analyse the high profitability, sales growth and other favourable factors that are found to be unable to motivate female managers towards taking risky decisions with female managers always tending to avoid taking debt financing option to increase their fixed assets.

This study empirically analyses gender-based debt preference for financing capital goods based and the likely preference shift when firms experience high sales growth. Analysing 18,683 firms in developing countries generated by the [World Bank's Productivity and Investment Climate Survey](#), this study finds that female top managers tend to use lower debt ratios compared to male top managers. In addition, sales growth does not motivate female top managers to change the capital structure by increasing debt as a financing source. This study is suitable for policymakers who want to develop regulations regarding female managers decisions about debt financing and their behavior in case of high sales growth towards debt financing. Thus, firms led by female top managers do not shift their debt ratio preference when experiencing high sales growth. This study increases the understanding of gender roles in corporate financial decisions – a topic area that is relatively understudied. Besides, this research also highlights that female top managers' debt decisions tend to be static as they are reluctant to increase debt ratios even if their firms experience rapid sales growth. As suggested by various capital structure theories, debt offers advantages that are absent in other financing sources. For example, the trade-off theory suggests that debt can increase firm value to a certain extent due to tax shield. Overall, this study offers practical insights into female top managers in developing countries. Specifically, they should not be fixated on low leverage. When their firms need additional financing to support growth, female top managers need to consider increasing debt within reasonable and manageable limits.

6. Limitations and Future Directions

Although, the present study carries significant theoretical contributions and practical implications, it still has some limitations which must be considered in the future. The current study takes stock of only two factors such as female top managers and sales growth to predict the debt financing decisions of top management while understating the role of other factors. Therefore, the present study suggests that future studies should consider additional factors that affect the top management decisions to investment in debt financing. In addition, the present study also only considers firms from developing countries while ignoring firms in developed countries. In the future studies, this narrow

scope should be expanded to include developed country contexts. Furthermore, the present study takes only robust standard error to examine the nexus among variables and suggests that future studies should incorporate other panel data techniques like generalized method of moments (GMM), fixed or random effect models. Finally, the present study has taken the data only for three years (2016 to 2018) and future research work should look into expanding the timeframe, and in doing so enhance the scope of this study.

14

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