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Financial Flexibility Prevalence Revisited with Evidence from South Africa

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Abstract: Financial flexibility occurs when companies borrow less than expected and is widely practiced. A commonly used model to establish the presence of financial flexibility is based on the determinants of the leverage model, which was developed some time ago and is composed of various factors that determine a company's leverage use. Governmental borrowing and financial sector development in the meantime were shown to be key drivers of corporate borrowing. We add these two factors to the original model to establish how the prevalence of financial flexibility is affected by these inclusions into the model. South Africa is used as a locality for the study because of its relatively recent financial sector development and increased governmental borrowing. The results of the study show that financial flexibility is more prevalent when these factors are considered in a South African context. Previous studies have paradoxically shown a lower financial flexibility prevalence in South Africa when compared to a developed market such as the UK, which is contradictory to developing market debt conservatism. In this study, we show that when accounting for financial sector development and governmental borrowing, financial flexibility is widely prevalent in a South African context, at similar levels to that of a developed economy. The primary implication of the study's findings is that financial flexibility may have been underreported in developed markets in prior studies.

Keywords: capital structure; financial flexibility; financial conservatism

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1. Introduction

Stylised capital structure theory has often made it seem like companies would borrow more than raise equity due to the tax benefits thereof, although many works have proved that this is not the case and that managers often maintain spare borrowing capacity (Myers 1984; Graham and Harvey 2002). While empirical evidence pointed towards gaps in the wider understanding of capital structure decisions, estimating spare borrowing capacity remained an empirically difficult undertaking. Marchica and Mura (2010) though, developed a now widely used method where firm characteristics are used to estimate leverage for a firm, based on the now seminal work by Frank and Goyal (2009). The actual leverage of the company, as observed in practice, is then compared to the estimated leverage and in this manner, spare borrowing capacity is gauged. While this allowed a measure of financial flexibility, the literature on leverage determinants advanced significantly in the years that followed. Graham et al. (2015), however, showed that the bulk of corporate leverage observed remained unexplained and showed that governmental borrowing and financial sector development play a critical role in driving leverage use.

The original model by Marchica and Mura (2010) did not include these two variables when estimating target leverage in emerging markets where financial conservatism is more the order of the day and governmental borrowing is often lower than in developed markets; therefore, the prevalence of financial flexibility may have been underestimated in prior studies. A prior UK-based study found a prevalence rate of 62% while a similar study of

emerging markets found a prevalence rate of 43% (Marchica and Mura 2010; Yung et al. 2015). Given this evidence, there exists a stark contradiction between the expected financial conservatism in developing markets and the relatively low observed prevalence of financial flexibility when compared to a developed market. This contradiction between the well-established and empirically understood leverage conservatism in emerging markets and the low rate of financial flexibility necessitated this study. This paper accounts for governmental borrowing and financial sector development in the determination of financial flexibility by adding these variables to the leverage determinants model used in prior studies to show that prevalence is significantly affected when these variables are considered.

It is appropriate to study the prevalence of financial flexibility in a South African context because the phenomenon of financial conservatism is more pronounced there than in the United States, but less so than in many other developing countries due to its more developed capital markets (Machokoto et al. 2021, p. 15). South Africa also provides a case where financial sector development gains are significant but rather recent, likely due to the abolishment of apartheid and international sanctions in the 1990s. Machokoto et al. (2020) corroborated this sentiment, arguing that corporate borrowing in South Africa increased in line with improvements in financial sector development between 1990 and 2015. In the USA, leverage plateaued in the early 1990s, making the recent effect thereof less pronounced (Graham et al. 2015). However, in South Africa, a plateau was only reached in 2020, hence the effect would likely be easier to observe in the recent data. These factors make South Africa an appropriate setting for the exploration of the prevalence of financial flexibility in an emerging market setting, but with established capital markets that still showed development over the sample period.

Research Questions

The research question that the paper thus aims to address is as follows:

Is the prevalence of financial flexibility affected by considering the more recently identified determinants of leverage, namely, governmental borrowing and financial sector development in the context of South Africa?

The objectives of the study were as follows:

1. Examine the relationship between governmental borrowing and financial sector development and corporate leverage.
2. Determine whether governmental borrowing and financial sector development affect financial flexibility prevalence in an emerging market context.

2. The Literature Review

Capital structure theory has grown from the seminal formal analysis initiated by Modigliani and Miller (1958, 1963). The initial focus on tax effects, dividend availability and bankruptcy risk were expanded to include a wide variety of other factors. Myers (1984) reviewed the broader capital structure literature with a specific focus on the trade-off theory, where the risk of bankruptcy is balanced against the tax benefit of using debt, and the pecking order theory which states a company would use internal financing first then external sources, according to their marginal costs. He, however, found that neither theory, in its pure forms, described capital structures observed in practice and neither had conclusive empirical support. Myers (1984) put forward a modified version of the pecking order theory to explain that companies borrow less than expected, given the beneficial tax shield derived from interest payments. His theory provided a plausible explanation for maintaining reserve borrowing capacity. Graham and Harvey (2002) corroborated this theory with evidence of financial managers considering maintaining reserve borrowing capacity to be a first-order important factor when making capital structure decisions.

While the modified pecking order theory and understanding that companies possibly maintain spare borrowing capacity was introduced by Myers (1984) decades ago, the capital structure debate oftentimes continues to test the trade-off and pecking order theories, albeit with caveats and improvements. Other theories have also emerged, however, for example,

the market timing theory and agency theory. The market timing theory essentially entails that companies issue equity when their share price is higher than their historic book or market value, and debt when it is lower thereby taking advantage of favorable market conditions (Baker and Wurgler 2002). Jensen and Meckling (1979) identified agency issues as possibly being deterministic in capital structure decision making, leading to the theory that (inter alia) debt use should be high to moderate the actions of management with regard to their own interest. While each of these theories explains aspects of capital structure decision making, none of the main theories wholly explain capital structure behavior observed in practice. Fama and French (2002, 2005) argued that capital structure theories seem to be conditional and that different theories apply to different situations, and they found that companies maintain less debt than would be expected given stylized capital structure theory.

The lower use of debt than would be expected may be due to the risk inherent in using debt and the associated uncertainty of future cash inflows but may also be due to the need to keep investment ability or hedge against external financing frictions (Arslan-Ayaydin et al. 2014, p. 211; Fama and French 2002, p. 4). Maintaining a lower-than-expected debt ratio, holding a large amount of cash, or a mixture of both, are the pathways companies commonly use to obtain financial flexibility and are argued to be a key determinant of capital structure composition (Denis 2011, p1). While many theories and much empirical evidence have been put forward in the literature, DeAngelo and DeAngelo (2007) argued that financial flexibility may be a key consideration in capital structure decision making, a viewpoint which is supported by a growing body of evidence.

Graham and Harvey (2002) conducted a survey of CFOs to find that financial flexibility and debt ratings are considered first-order important issues by the respondents with the study showing that respondents are concerned with being able to timeously access financing when necessary. Their survey further found that the respondents did not assign the same amount of importance to either the pecking order or trade-off theories. Empirical evidence supports the survey findings and shows that companies tend to prioritize borrowing capacity. Hess and Immenkötter (2014) examined the behavior of companies facing debt rating downgrades and their findings of widespread behavior indicative of spare borrowing capacity being restored are interpreted as evidence of financial flexibility being widely pursued. This behavior aligns with the idea that companies primarily focus on having funds available, especially in the form of spare borrowing capacity. Denis and McKeon (2016) illustrated how, in practice, companies tend to de-lever below their perceived optimal debt level and then re-lever far above their expected leverage ratio. This tendency is argued to allow companies to undertake potentially profitable investment opportunities or support operations and exposes both the mechanism of de-levering and motivation to seek financial flexibility.

The effects of financial flexibility have been studied extensively. Financial flexibility was shown to lead to better performance during a downturn and better market share retention during a crisis which is likely due to the ability to sustain investment during times of upheaval (Campello et al. 2010; Bancel and Mittoo 2011; Devos et al. 2012; Arslan-Ayaydin et al. 2014). It was also shown to lead to increased investment by companies as well as outperformance of the market after obtaining the status (Marchica and Mura 2010). DeAngelo et al. (2018) show that companies commonly go through high- and low-leverage cycles. They find that oftentimes companies de-lever by paying off debts, then by retaining earnings, and that in fewer than 5% of cases, de-leveraging is achieved by way of issuing equity. This is rather like a pecking order theory of un-leverage. Conversely, previous studies (for example, Arslan-Ayaydin et al. 2014), found that peak leverage for most companies occurs during recessions, which explains how companies use spare borrowing capacity to weather recessionary storms. Ang and Smedema (2011) similarly found that companies with financially flexible characteristics hoard cash in the lead-up to recessions whilst postulating that companies that do not have these characteristics are likely unable to do so.

The effects of financial flexibility have been studied extensively and their existence thereof is firmly established, but the prevalence has received less attention in the literature. Marchica and Mura (2010) discussed prevalence, finding a large amount of London Stock Exchange (LSE)-listed companies achieving the status while Yung et al. (2015) found a smaller but still widespread prevalence in a large sample of emerging economies. In both studies, financial flexibility is determined based upon a deviation from target leverage as estimated by the seminal determinants of leverage model from Frank and Goyal (2009). Frank and Goyal (2009) expanded on Rajan and Zingales (1995)'s work, finding a handful of reliable determinants of debt use. These factors included industry leverage, company profitability, growth expectations, company size, asset tangibility and expected inflation. Marchica and Mura (2010) devised a novel and interesting method to observe financial flexibility based on this model where the determinants are used to estimate a target leverage ratio for a company. This target leverage ratio is then compared to actual leverage and a negative deviation indicates financial flexibility. However, since its publication, new reliable determinants of debt use have been identified and empirically tested. Marchica and Mura (2010) and Yung et al. (2015) both, due to their time of publication, did not account for the crowding-out theory and financial sector development, as identified by Graham et al. (2015).

The literature regarding the determinants of corporate leverage tended to focus much on factors internal to, and directly affecting the borrowings of a company but did not always consider borrowing market conditions. Lemmon et al. (2008) observed this and argued that there must be some unobserved factor driving corporate borrowing because the R^2 value for fixed effects in prior studies is larger than that of the actual identified, and tested, determinants of leverage. DeAngelo and Roll (2015, p. 392) similarly found that while there are company-specific factors that are indeed important in driving leverage, there must be a long-term external force present. Graham et al. (2015) showed how governmental borrowing and financial sector development drove corporate borrowing in the long term, accounting for much of the long-term leverage activity observed. They showed these two factors to be reliable determinants of corporate leverage and that over the course of a century were the primary drivers of corporate borrowing. Akkoyun (2019) and Demirci et al. (2019) provide confirmatory evidence for Graham et al.'s (2015) findings, cementing the reliability of governmental borrowing and financial sector development as determinants of corporate leverage. At the time of both Marchica and Mura's (2010) study and that of Yung et al. (2015), it was not empirically established beyond doubt that governmental borrowing, and financial sector development were reliable determinants of debt use and neither of these two studies took these two factors into account. This study then adds to the literature by adding governmental borrowing and financial sector development to the determinants of the leverage model utilized in prior studies to determine the prevalence of financial flexibility.

This is an important addition to the literature on capital structure theory. Should financial flexibility not be widely pursued, it gives less credence to the notion that it is an important factor in capital structure theory; however, should the opposite be true, it would provide further substantiation to the strand of literature that considers it to be first-order important in capital structure decision making. Marchica and Mura (2010) found a financial flexibility prevalence rate of 62% in the UK, based on a 10% negative deviation from the target leverage estimated, from their model based on the determinants of leverage. Yung et al. (2015) reported a prevalence rate of 68% for a sample of emerging economies. This seems to support the greater financial conservatism in emerging markets; however, in their study, this percentage was for any negative deviation from the estimated target leverage. It was briefly reported in their paper that when a 5% negative deviation from the estimated target leverage is used as the criterion to be classified as financially flexible, the prevalence rate fell considerably to 43%. Considering that the negative deviation used as a classification criterion in Marchica and Mura (2010) was 10%, it would be fair to extrapolate and say that the prevalence would be significantly lower yet if this hurdle rate was used in Yang

et al.'s 2015 study. Considering, however, that in emerging markets, corporate borrowing is usually lower and debt conservatism more pronounced, the juxtaposition of these two prior studies reporting a higher prevalence of financial flexibility in a developing market is confounding (Machokoto et al. 2021). Given the current understanding of leverage determinants, this study makes the case that the exclusion of governmental borrowing, and financial market development plays a role in the previous under-reporting of financial flexibility in emerging markets.

Marchica and Mura (2010) reported the prevalence in the UK, which has had highly developed financial markets for a long time. However, South Africa has undergone significant financial market development over the past three decades (Machokoto et al. 2021). This made South Africa an appropriate locale for the study in terms of testing financial sector development over a similar period compared to prior studies, as there are data available for the various reliable leverage determinants over the same period that financial sector development took place. The JSE, specifically, is also an anomalous exchange in an emerging market context. The exchange has a large market value of listed companies expressed as a percentage of gross domestic product when compared to other emerging markets (Iliasov and Kokoreva 2018). This adds another dimension to the study in that the exchange facilitates corporate borrowing at significant levels and that corporate borrowing is an important aspect of financing enterprise, which is not necessarily the case in emerging markets (Iliasov and Kokoreva 2018).

Graham et al. (2015) related that in the US, governmental borrowing plateaued in the early 1990s. A similar trend was observed for other developed countries. In South Africa, however, governmental borrowing only plateaued in 2020 and, therefore, there may be a significant crowding-out effect over the period of the study. This makes South Africa appropriate to study for both new factors influencing corporate borrowing, a confluence of circumstances that is convenient to test how the nascent literature on determinants of debt use influences our understanding of how commonly financial flexibility is achieved in an emerging market while making use of recent, standardized (by IFRS standards) financial data exists. Another factor is the empirically established fact that corporate borrowing in South Africa is considered to be constrained directly by governmental policies and the greater financial environment (Saona et al. 2024)

3. Materials and Methods

Financial flexibility is not readily observed due to it being a measure of spare borrowing capacity which differs based on firm characteristics and the operating environment; however, Marchica and Mura (2010) devised a novel, and often replicated, method to measure it. A similar regression model to that of Frank and Goyal (2009) is estimated for the sample. From the fitted model, coefficients for the various determinants of debt use are estimated. These are then fitted to the actual observed data, resulting in a target debt ratio for each company. The target debt ratio is then compared to the observed debt ratio and a negative difference for a period implies that financial flexibility is being pursued as a policy. This approach was adopted by numerous prior studies in the field (Yung et al. 2015, p. 25; Zhou et al. 2016, p. 99; Bilyay-Erdogan 2020, p. 726; Ho et al. 2021, p. 9; Marchica and Mura 2010, p. 1342; Gu et al. 2020).

In Marchica and Mura (2010), a negative deviation of 10% or more for a period of at least three years was used to identify financially flexible companies while in Yung et al. (2015) a negative deviation of 5% over three years was used. Both thresholds were tested in this present study to ensure comparability with the prior studies.

The model including the independent variables is defined as (Marchica and Mura 2010):

$$\begin{aligned} Leverage_{it} = {} & \alpha_1 Leverage_{it-1} + \beta_1 IndustryLeverage_t + \beta_2 Profit_{it} + \beta_3 MtB_{it} + \beta_4 Size_{it} \\ & + \beta_5 Tangibility_{it} + \beta_6 Expected\ Inflation_t + \beta_7 Cash_{it} + \eta_t + u_{it} \end{aligned} \quad (1)$$

where

$Leverage_{it}$ is the predicted leverage and represents the leverage measures.

$Leverage_{it-1}$ is the leverage lagged by one period.

$IndustryLeverage_t$ is the median leverage of the industry in which an organisation is classified.

$Profit_{it}$ is the ratio of net profits to total sales.

MtB_{it} is the ratio of the market value of equity to the book value of equity.

$Size_{it}$ is the natural logarithm of assets in base year prices.

$Tangibility_{it}$ is the ratio of fixed assets to total assets.

$Expected\ Inflation_{it}$ is the risk-free interest rate based on a treasury or government bond.

Where $Cash_{it}$ represents the cash holdings of the company expressed in terms of its total assets ($\frac{Cash\ holdings}{Total\ assets}$) at time t for company n.

η_i and η_t is the error terms associated with the individual company observations and time series, respectively.

u_{it} is the unobservable error associated with the dependent variable.

With i being the cross-sectional component and t the time series component of each variable.

The model including cash holdings from Marchica and Mura (2010) is used because it had a negligible effect in their analysis but adding it ensures a measure of comparability with Yung et al.'s (2015) study.

Our expanded model including governmental borrowing and financial sector development based on the work of Graham et al. (2015) is as follows:

$$Leverage_{it} = \alpha_1 Leverage_{it-1} + \beta_1 IndustryLeverage_t + \beta_2 Profit_{it} + \beta_3 MtB_{it} + \beta_4 Size_{it} + \beta_5 Tangibility_{it} + \beta_6 Expected\ Inflation_t + \beta_7 Cash_{it} + \beta_8 Govt_t + \beta_9 FSD_t + \eta_i + \eta_t + u_{it} \quad (2)$$

where:

$Govt_t$ represents governmental borrowing levels expressed as a percentage of the gross domestic product (GPD) of the country at time t as in Graham et al. (2015).

FSD_t represents the financial sector development of a country at time t, proxied for by financial sector output expressed as a percentage of gross domestic product as per Graham et al. (2015).

In line with various prior studies that utilized a similar method to estimate financial flexibility adoption, a generalized method of moments: system of equations (GMM:SYS) model was used for the estimation of the target leverage models (Yung et al. 2015, p. 25; Bilyay-Erdogan 2020, p. 726; Ho et al. 2021, p. 9; Marchica and Mura 2010, p. 1342; Gu et al. 2020). Various diagnostic tests were performed to ensure that GMM is the most appropriate estimator for the estimation and ordinary least squares, fixed effects and random effects estimators were also considered. The results of these tests are discussed below in the following section. The GMM:SYS estimator accounted for the dynamic nature of the model and the endogeneity of the variables while allowing for company-level fixed effects in the data (Lemmon et al. 2008; Marchica and Mura 2010).

All data used in this study are available in the public domain in some way or form. Financial line-item data are available in financial reports or through data aggregators. All the financial line-item data were, however, sourced from IRESS, which is a private data service that aggregates financial statement data and requires a subscription. Inflation, governmental borrowing, and financial sector development data were sourced from Statistics South Africa (Statistics South Africa 2021). Permission to conduct the research was provided by the appropriate research ethics committee in the authors' resident institution.

The statistical package STATA was used for the GMM:SYS estimation, descriptive statistics and the analyses laid out in Tables 1–3. A Python script was developed to identify deviations from the target leverage and tally the consecutive years that deviations exceeded the threshold. The output of this was imported into Microsoft Excel to be tabulated.

The population for the study was all listed companies on the JSE over the period 1995 to 2020. The sample taken from this was all non-financial companies that had enough

available data to determine financial flexibility status. The sample selection comprised downloading all relevant financial line-item data for all listed non-financial companies over the study period and subsequently excluding any companies that did not have the requisite data, i.e., four years of line-item data. Due to regulatory requirements, financial companies essentially have regulated capital structures. Due to the target leverage determination being a dynamic model, past leverage was required for the estimation. Because a company had to maintain a negative deviation to target leverage for at least three years, four years' worth of data were required for a company to be considered. This left a sample of 189 companies. The dataset was winsorized at a 1% level to account for outliers rather than being trimmed, this was performed to preserve the size of the sample and is argued to have little influence on the analysis (Marchica and Mura 2010).

Table 1. Diagnostic statistics.

	Debt Ratio	Market-to-Book	Size (in R',000,000)	Cash Holdings	Asset Tangibility	Profit
Mean	0.56	4.62	12,071	0.13	0.34	0.05
Standard deviation	0.28	13.18	25,460	0.14	0.27	0.18
Maximum value	1.75	89.22	167,799	0.77	0.97	0.39
Minimum value	0.04	−43.64	7410	0.00	0.00	−1.00
Jarque–Bera test *	1981	67,657	50,731	8167	310	34,652

Total number of observations: 3272. * All Jarque–Bera p-statistics tend towards zero.

A brief overview of the descriptive statistics of the company-level data used in the target leverage estimation is presented in Table 1. A mean debt ratio of 56% is observed which is only slightly higher than that seen in the USA and other developing countries (Frank and Goyal 2009; Yung et al. 2015). This seems to contradict prior findings of different leverage characteristics of the South African market, specifically the prevalence of financial flexibility as a higher debt ratio would be expected. The market-to-book ratio observed was considerably higher than the average of 1.4 observed by Yung et al. (2015) and indicated more expected growth opportunities for JSE-listed companies compared to contemporary markets. The average company in the sample is 32% larger than described in Yung et al. (2015) while cash holdings are similar to over markets. There is a significant difference in cash holdings from a minimum value of zero to comprising 77% of total assets, this serves as an impetus to include cash holdings as a possible source of financial flexibility together with the findings of Bancel and Mittoo (2011). Asset tangibility and profitability both showed a wide dispersion across the sample with proportionally large standard deviations.

Table 2. Correlation matrix for target leverage estimation.

	Debt Ratio	MTB	Size	Cash Holdings	Asset Tangibility	Profit	Lagged Leverage
Debt ratio	1.000						
MTB	−0.008	1.000					
Size	0.035 **	0.018	1.000				
Cash holdings	−0.063 ***	0.054 ***	−0.111 ***	1.000			
Asset tangibility	−0.008	0.065 ***	0.116 ***	−0.381 ***	1.000		
Profit	−0.246 ***	−0.002	0.050 ***	0.039 **	0.006	1.000	
Lagged leverage	0.704 ***	0.057 ***	0.069 ***	−0.005	−0.021	−0.122 ***	1.000

Significance indicated by ***, ** at the 1% and 5% level, respectively.

Table 3. Estimation results.

Two-Step System GMM Results			
	N = 2898		
Variables	Full model	Marchica and Mura (2010)	Marchica and Mura (2010) with Cash
Debt ratio$_{t-1}$	0.7753 ***	0.8016 ***	0.7997 ***
	(−18.54)	(−19.68)	(−19.59)
Industry leverage	0.0095	0.036 ***	0.0374 ***
	(−1.29)	(−3.91)	(−4.1)
Profitability	−0.2655 ***	−0.2514 ***	−0.2486 ***
	(−4.65)	(−4.34)	(−4.32)
Market-to-book	−0.001	−0.0013	−0.0013
	(−1.55)	(−1.49)	(−1.47)
Size	0.0001	0.0001 **	0.0001 ***
	−0.76	−2.75	−2.72
Asset tangibility	−0.027	0.0497 ***	0.0455 ***
	(−1.46)	(−3.02)	−2.85
Governmental borrowing	−0.0006 *		
	(−1.66)		
Cash holdings	−0.1463 ***		−0.3467
	(−3.11)		(−0.80)
Inflation	0.0029 ***	0.0092 ***	0.0098 ***
	−2.78	−3.02	−5.17
Financial sector development	0.0080 ***		
	−4.85		
	Diagnostic statistics		
Instruments	156	117	118
Groups		186	
AR(1)	z = −5.07	z = −5.05	z = −5.04
	Pr > z = 0.000	Pr > z = 0.000	Pr > z = 0.000
AR(2)	z = −1.69	z = −1.77	z = −1.78
	Pr > z = 0.091	Pr > z = 0.076	Pr > z = 0.075
Difference in Hansen test	chi2 = 7.19	chi2 = 6.20	chi2 = 6.02
(levels)	Pr > chi2 = 0.41	Pr > chi2 = 0.287	Pr > chi2 = 0.305
Hansen difference test	chi2 = 11.55	chi2 = 10.26	chi2 = 9.87
(exogenous)	Pr > chi2 = 0.24	Pr > chi2 = 0.114	Pr > chi2 = 0.20

T-statistics reported in parentheses. Significance at the 10%, 5% and 1% levels are indicated by *, ** and ***, respectively.

Considering that all the variables in the estimation are related by way of accounting relationships, i.e., total assets are present in the leverage ratio and asset tangibility, a significant measure of co-movement would be expected. However, as can be seen in Table 2, this is confined to the negative effect of profit on debt use and cash holdings on asset tangibility, both expected relationships, which justifies the choice of regression method to account for this behavior. Lagged leverage is closely correlated with leverage, which is to be expected and justifies the use of a dynamic model (An et al. 2021, p. 340).

4. Results

To test for the appropriateness of a GMM:SYS model, as in previous studies, an OLS regression was run, and the residuals of the model were subjected to a variety of tests. Diagnostic tests on the data were performed to ensure an appropriate regression model was used. An ordinary least squares (OLS) model was fitted, but the residuals when subjected to the Breusch–Pagan test indicated that heteroskedasticity was present in the residuals while the Durbin–Watson test statistic and the Ljung–Box Q-statistic both indicated the presence of autocorrelation. A Hausman test was then performed on the residuals of the model fitted with a fixed effects and a random effects model, respectively. The results indicated that the fixed effects model is a better fit. A Breusch–Pagan LM test indicated that random effects are not significant. Fixed effects models are, however, negatively affected

by the presence of lagged regressors, and the R^2 of the OLS estimation was higher than was the case for the fixed effects model, reinforcing the need to use another estimation technique. These anomalous tests were, therefore, interpreted to be caused by endogeneity while the presence of autocorrelations and heteroskedasticity needed to be controlled for. Using a GMM estimator rather than OLS or GLS (random effects) leads to efficiency gains in the presence of heteroskedasticity while also removing group (or fixed) effects (Greene 2012, p. 535). The use of the estimator was thus deemed appropriate based on the variety of diagnostic tests performed.

A GMM: SYS estimator was thus used to fit the model. The diagnostic statistics presented in Table 2 indicate a good fit for the GMM:SYS model. Entity effects and time effects were included, and the covariance estimator used was robust while a two-step estimator was specified. The Arellano–Bond autocorrelation test indicated the presence of autocorrelation in the first-order lag of the residuals which is expected in the model. The null hypothesis of autocorrelation is present in the second order of the first difference lags of the residuals and is rejected at the 5% level. The Hansen overidentification test indicated that overidentification is within reasonable limits. The Sargan test assumes homoscedastic errors, which, given the previous analysis carried out on the errors of the model, is not a realistic assumption given the distribution of the data (Roodman 2009). The Hansen J test, however, is robust to this but can be upwards biased in the presence of too many instruments. The sample, however, has a large n compared to the number of instruments and this would negate the problem. The difference in Hansen tests indeed indicates that the lagged regressor and explanatory variables are only weakly exogenous and are, therefore, suitable instruments. It is worth noting, however, that there is a possibility that the test is upward-biased because of the large T and n. The Hansen test of overidentifying restrictions also indicates a rejection of the null hypothesis that the model is over specified, however, the statistic may again be upwards biased because of the large T. A *p*-value of 1.000 would have been more concerning, however, as it is not 1.000, the statistic indicates a strong rejection of the null (Roodman 2009). The diagnostic statistics confirm that the system GMM model fits well with the set of variables used. It is worthwhile to note the large T and n of the sample when considering the diagnostic tests used because some of the tests can present unreliable values in the presence of long panels and large datasets. All the variables used in the estimation are well motivated from the literature and are all proven determinants of debt use while having extremely strong theoretical arguments for their inclusion, as does the need for a lagged regressor and thus a dynamic model (see inter alia Marchica and Mura 2010; Yung et al. 2015).

The result from the estimation is insightful regarding both the striking similarities between the baseline model from Marchica and Mura (2010) and that from the expanded model including governmental borrowing and financial sector development. The influence of the lagged debt ratio is similar but slightly lower when considering the new factors. Specifying a dynamic model is justified given this result, as in previous similar studies. Industry leverage was found to be significantly positive in the baseline models but not so in the expanded model, it seems that when factoring in governmental borrowing and financial sector development, industry leverage is less important than previously thought. It may also be an artifact of the South African market conditions where some industries are relatively thinly populated. Profitability was found to be negative and significant across all three models and with a similar coefficient as in previous studies, albeit slightly more so when considering the new factors. The market-to-book ratio was negative but insignificant across all three models, considering that it was found to be significant in many prior studies, this may be an artifact of the locale of the study.

Company size and asset tangibility were found to be significantly positive and negatively correlated with leverage, respectively, in both specifications of the baseline model but not so in the expanded model. This may indicate that considering the new factors negates these previously observed relationships. Company size exhibited a very small positive effect, but asset tangibility had a large influence on leverage, the rendering of these two

established factors as being insignificant could possibly be due to the inclusion of financial sector development. A more developed financial sector would ostensibly allow access to financing regardless of size, while the prevalence of secured debt declines with financial sector development as more emphasis is placed on the analysis of creditors' abilities to repay debts (Benmelech et al. 2021). Thus, correcting for financial sector development likely somewhat negates these two well-established factors that make theoretical sense, however, the consideration of financial flexibility in the theoretical framework of capital structure changes this to some extent as companies need not give out security to lenders except when distressed (Benmelech et al. 2021). Governmental borrowing showed an, as expected, significant but small negative influence on debt use. This is in line with the findings and expectations generated by Graham et al. (2015). Cash holdings were significant when correcting for the new factors but not in the baseline model. The baseline findings are in line with the findings of Marchica and Mura (2010). When also considering financial sector development and governmental borrowing, cash holdings become significant in line with theoretical expectations (Bancel and Mittoo 2011). Inflation was found to be a significant positive determinant of leverage in all models tested, however, its influence was less pronounced with the inclusion of the new factors. Finally, financial sector development exhibited a significant positive effect on leverage in line with Graham et al.'s (2015) findings.

As outlined in the methodology section, the weights from the regression results were then used to estimate a target leverage value for each company in the sample. The mean estimated leverage across the sample was 0.60 which compared well with the mean observed leverage of 0.56 and is indicative of lower-than-expected borrowing in general in the sample. A negative deviation of 10% or more for three consecutive years led to a company being classified as being financially flexible. The same test with any negative deviation and a deviation of 5% was also executed. The number of companies being classified as financially flexible was tallied together with the average lengths for which the status was maintained and also the longest time it was maintained for. The results for the 10% deviation are presented in Table 3.

As can be seen in Table 2, when using the full model to determine financial flexibility status significantly more companies seem to achieve the status as compared to the baseline model. This is interesting as it may indicate that financial flexibility is much more prevalent than previously thought. This finding provides evidence in line with previous survey studies (Bancel and Mittoo 2004; Graham and Harvey 2002) which found that financial managers consider financial flexibility to be first-order important when making capital structure decisions and that financial flexibility is indeed widely pursued in practice. When not accounting for governmental borrowing and financial sector development, financial flexibility seems to have been underestimated by previous studies where the new determinants identified in the literature were not considered in the model (see Marchica and Mura 2010, for example). The duration of companies maintaining financial flexibility is somewhat higher using the expanded model when compared to the baseline model while the maximum duration of maintaining the status is longer when considering the full model also. This again points to financial flexibility attainment being less pronounced when the baseline model was used to estimate the attainment of the status.

Marchica and Mura (2010) found a prevalence of 62% in the United Kingdom (UK) for London Stock Exchange-listed companies using the baseline model. This shows a large difference with respect to that of JSE-listed companies and a much higher prevalence of financial flexibility in the UK. It is entirely possible that considering the newly added factors in the context of the UK would have a much less pronounced effect due to the maturity and development of its financial markets. The prevalence of 62% for the UK using the baseline models and 59% on the JSE, using the extended model, may be more comparable due to the differences in the economic environments, especially considering the influence of financial sector development and governmental borrowing and the different phases of the UK and South African economies during the period of the study. South African financial sector development-driven borrowing was prevalent over the sample period

(Machokoto et al. 2021). The same was ostensibly not true in the UK, due to it having a mature and well-developed financial market and it would likely have seen a stabilization of borrowing as seen in the USA in the mid-1990s already (Graham et al. 2015). The development of the financial sector in South Africa over this period, however, provided the opportunity to illustrate the difference in financial flexibility prevalence when considering it and governmental borrowing. The difference is obvious. Financial flexibility is much more prevalent when considering governmental borrowing and financial sector development (compared to when these two factors were not controlled for) when determining corporate leverage. When not considered, only 20% of the sample attained the status, while when considered, this increased to 59%.

Yung et al. (2015) used a deviation of 5%. To ensure comparability we also identified financially flexible companies using the latter, smaller, negative deviation. In the baseline model at a 5% negative deviation, 33% of companies achieved financial flexibility while in the extended, full model, 70% achieved financial flexibility. In a sample of 8604 companies from emerging economies from 1991 to 2010, 43% were found to be financially flexible by Yung et al. (2015). As expected, the prevalence was lower in developing economies than in the UK while the use of a 10% deviation as in Marchica and Mura (2010) would likely have seen an even lower prevalence rate in emerging economies. The difference at the 5% negative deviation was again significant as 70% of the sample exhibited financial flexibility attainment compared to 33% when specifying the baseline model indicating that financial flexibility prevalence may have been underestimated in prior studies where governmental borrowing and financial sector development were not considered.

The evidence gathered in the context of South Africa is compelling. Machokoto et al. (2021) documented that South African companies are less financially conservative compared to other emerging economies. This is corroborated by the evidence in Table 4. When controlling for the financial market environment, however, South African companies seem to pursue financial flexibility at the same rate that companies in developed economies do. It is interesting to note that when not controlling for this, financial flexibility seems to be less prevalent in South Africa than in even a developed market such as the UK. This provides credence to the notion that financial sector development and governmental borrowing are indeed important determinants of leverage (Graham et al. 2015).

Table 4. Financial flexibility status summary. Full model vs. baseline model at 10% deviation.

N = 189	Full Model	Baseline
Number of companies attaining financially flexible status	111	38
Percentage of sample	59%	20%
Average duration of status	5.72 years	4.55 years
Maximum duration of status	19 years	13 years

As a measure of robustness, the model was run with a variety of deviations from target leverage as in Yung et al. (2015). These measures also assist with comparability between various studies that used a similar model to determine financial flexibility. Any negative deviation was tested, and a threshold of 5% and a threshold of 10% were tested for both the extended model and the baseline mode, the results of which are shown in Tables 4 and 5. Further evidence was sought by using different cut-off periods, at the 10% negative deviation threshold, for the attainment of financial flexibility, namely four and six years as in Bilyay-Erdogan (2020).

As can be seen in Table 6, the expansion of the model to include governmental borrowing and financial sector development shows that the baseline model, within the context of South Africa, seemingly led to the prevalence of financial flexibility being underestimated. The results are robust to various negative deviations from target leverage and different lengths of financial flexibility status attainment. A further measure of robustness is the overall debt ratios observed. The average debt ratio on the JSE is similar to that of other markets. If financial flexibility was indeed less prevalent, it is likely that at least to some

extent, a higher debt ratio would have been observed. The similarity in leverage between the JSE and other markets considered in unison with studies finding emerging markets to be more conservative in debt use, provides an indication that financial flexibility should be more prevalent in South Africa than had been found in prior works.

Table 5. Financial flexibility status summary. Full model vs. baseline model at 5% deviation.

N = 189	Full Model	Baseline
Number of companies attaining financially flexible status	133	62
Percentage of sample	70%	33%
Average duration of status	6.5 years	4.8 years
Maximum duration of status	23 years	14 years

Table 6. Prevalence rates at different thresholds.

Prevalence at different negative deviation thresholds from the target estimated leverage.					
10% negative deviation		5% negative deviation		Any negative deviation	
Expanded	Baseline	Expanded	Baseline	Expanded	Baseline
59%	20%	70%	33%	87%	43%
Prevalence at different time lengths (10% deviation from target leverage)					
3 Years		4 Years		6 Years	
Expanded	Baseline	Expanded	Baseline	Expanded	Baseline
59%	20%	35%	14%	15%	3%

5. Discussion and Conclusions

Prior studies postulated that financial flexibility may be a part of the capital structure theory puzzle that could explain behavior not explained by the pecking order or trade-off theories (DeAngelo and DeAngelo 2007; Denis 2011; Marchica and Mura 2010). Early survey-based studies found evidence of financial flexibility being first-order important when making capital structure decisions (Graham and Harvey 2002; Bancel and Mittoo 2004). Marchica and Mura (2010) provided empirical evidence that companies widely pursue financial flexibility. Yung et al. (2015) supported this finding but when comparing similar criteria for the identification of financially flexible companies, the prevalence in emerging markets was seemingly not as pervasive as in a developed market which contradicted recent evidence that companies in developing markets are more financially conservative than those in developed economies.

We argued that the identification of financially flexible companies might be the reason for this discrepancy and by accounting for the unexplained drivers of corporate leverage, as identified by Lemmon et al. (2008) and Graham et al. (2015), we contributed to the literature by showing that financial flexibility is indeed widely sought and attained in an emerging market context, with evidence from South Africa. This study provided evidence that taking governmental borrowing and financial sector development into account when determining the target leverage ratio leads to the conclusion that financial flexibility is much more prevalent than previously thought in a South African context. With financial market development at a lower level than that of developed markets and governmental borrowing only increasing recently in the country, these two factors seem to have had a much more profound recent impact on the prevalence of financial flexibility. Yung et al.'s (2015) findings of lower prevalence in developing markets, specifically of a lower prevalence rate in South Africa than in the UK, contradicted the literature regarding debt conservatism in South Africa (Machokoto et al. 2021). Accounting for financial market development and governmental borrowing, financial flexibility is seemingly sought at a similar or higher rate than in the UK thus, which aligns well with evidence on debt use in South Africa.

A possible limitation of the study is that some of this is attributable to South African market idiosyncrasies. Despite this, however, it seems probable that the prevalence of

financial flexibility has been previously underreported due to both governmental borrowing and financial sector development not being considered to be drivers of corporate leverage. This influence may be more pronounced in emerging markets due to financial sector development and governmental borrowing already being at a high level in many developed markets.

For practitioners, the primary implication of our study is that the widespread adoption of financial flexibility as a policy confirms that many companies become flexible to absorb either exogenous shocks or for better future investment ability. Taking our findings into consideration together with the evidence of superior investment performance post attaining financial flexibility status, practitioners should note that becoming financially flexible before undertaking significant capital expenditure has considerable benefits, is widely carried out and may even be considered a possible source of competitive advantage.

Future research could use data from a wider sample of countries to filter out country-specific issues that may influence financial flexibility attainment. A comparison of the developed market and the emerging market prevalence using the updated empirical determinants of leverage would add to the debate on the prevalence and, hence, the importance of financial flexibility in capital structure decision making.

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