# Economic Policy Uncertainty, Capital Expenditure and Corporate Cash Holdings Dynamics in South African Listed Firms

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Posted Date: 14 July 2025

doi: 10.20944/preprints202507.1040.v1

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 doi:10.20944/preprints202507.1040.v1



*Article*

# Economic Policy Uncertainty, Capital Expenditure and Corporate Cash Holdings Dynamics in South African Listed Firms

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**Abstract**

This study investigates the relationship between economic policy uncertainty (EPU) and corporate cash holdings, focusing on non-financial firms listed on the Johannesburg Stock Exchange (JSE). It aims to understand how South African firms adapt their financial strategies in response to EPU, addressing a gap in empirical research within developing economies. The study uses a sample of 184 non-financial firms listed on the JSE to examine the impact of EPU on corporate cash holdings, exploring the mediating role of capital expenditure and the moderating role of financial constraints. The findings reveal a positive relationship between EPU and corporate cash holdings, mediated by capital expenditure. The results further show that financial constraints do not significantly moderate this relationship. This supports the real options theory over the precautionary savings theory in explaining the observed link between EPU and cash holdings. The study offers insights for corporate managers and policymakers on how firms in developing economies adjust their financial policies in response to heightened economic uncertainty, informing strategic decisions in uncertain policy environments. This research contributes to the limited literature on EPU in emerging markets by providing evidence from South Africa. It advances understanding of firm behavior under uncertainty and supports theoretical perspectives that prioritize investment deferral options over precautionary motives in cash holding decisions.

**Keywords:** economic policy uncertainty; corporate cash holdings; non-financial corporates; johannesburg stock exchange; real options theory; precautionary savings theory; financial constraints

## 1. Introduction

In the aftermath of the 2008 Global Financial Crisis, and as globalisation gathers pace, aided by the 4th industrial revolution, compounded with rising political polarisation, the world has increasingly become fixated on policy uncertainty (Baker et al., 2016; Zhao & Niu, 2023). More recently, the Covid-19 pandemic and the Russia-Ukraine conflict has seen global economic uncertainty reach tipping points. While extant literature show that fiscal and monetary policy implemented by governments impact economic realities such as investment and economic growth, there is a dearth of studies that investigate the impact of economic policy uncertainty (EPU) on economic activities such as corporate cash holdings (Aye, 2019; El Ghoul et al., 2023).

Businesses function in a dynamic environment that is impacted by the choices made by political figures and establishment institutions. Dhillon & Nguyen (2021) state that the contemporary business environment has become extraordinarily erratic and tumultuous, with daily disruptive changes. Business leaders, academics, and the press throughout the world frequently refer to this dynamic environment by the abbreviation VUCA, which is interpreted as volatility, uncertainty, complexity, and ambiguity.

 doi:10.20944/preprints202507.1040.v1



As this changes lead to changes in economic policy, this will therefore have an impact on the firm's economic environment (see for instance, Kang et al., 2014). Financial decisions of corporates are likely to be impacted by the uncertainty over future government policies and their possible consequences (Demir & Ersan, 2017). Empirical studies on the effects of EPU on corporate decisions have been hamstrung by the challenge of determining the right proxy to measure the uncertainty. Recently, however, the developed world has greatly benefited from the EPU index developed by Baker et al. (2016).

Since the introduction of EPU by Baker et al. (2016), the index has been employed by a growing number of studies as a measurement of uncertainty (Borojo et al., 2022). The index attempts to account for uncertainty about who will make decisions about economic policy, what actions will be taken and when, and the economic effects of those actions and inactions. Unfortunately, the EPU Index excludes other countries especially from the developing economies (Chireka, 2024). This has limited empirical studies from emerging economy on the impact of EPU on economic development and decisions.

The paucity of studies on how corporate cash holdings respond to EPU is well documeneted in literature, especially in emerging economies (Demir & Ersan, 2017; Feng et al., 2022). This is mostly due to the challenges of finding suitable proxies to measure EPU as the Baker's et al. (2016) index excludes these economies. Recent studies have also tried alternative measures including the more recent Geopolitical Risk Index of Caldara and Iacoviello (2022), the Twitter measure of Baker et al. (2021) and the Search measure of Bontempi et al. (2021). Despite their usefulness, all of these approaches have one significant drawback in common: they are usually restricted to a small group of highly developed economies, and the data for many of these nations are only available subsequent to the early 1990s.

In South Africa, Hlatshwayo and Saxegaard (2016) as well as North-West University (2016) have created their own proxies for EPU. However, the former has been criticised for its subjectivity and the latter is only available from 2015. This study employs an alternative proxy, the World Uncertainty Index (WUI) published by the Federal Reserve Economic Data (FRED) to invistigate the impact of EPU on the corporate cash holdings dynamics in South Africa. The study period extends from the year 2010 to 2023. The WUI is regarded as a neutral and more objective measure of EPU (Ahir et al., 2022).

Therefore, it is unsurprising that, while, previous studies found that South African non-financial corporates (NFCs) hold higher proportions of their assets as cash compared to other NFCs in emerging economies such as the BRIC countries (Brazil, Russia, India and China) countries (Karwowski et al., 2022); no study has linked EPU to the corporate cash holdings dynamics of South African NFCs. This study therefore seeks to fill this lacuna.

We examine the relationship between economic policy uncertainty (EPU) and corporate cash holdings using the World Uncertainty Index (WUI), a robust proxy for EPU developed by Ahir et al. (2022) and published by FRED. The study's findings confirm that EPU positively influences corporate cash holdings. Further analysis reveals that this effect operates through the capital expenditure channel, with EPU exerting a negative impact on cash holdings by prompting firms to reduce or delay capital expenditures, thereby increasing their cash reserves.

This study adds to the nascent literature that links corporate cash holdings to economic policy uncertainty. A positive association between EPU and cash holdings have been found in predominantly US-based empirical studies (Gao et al, 2014; Gulen & Ion, 2016; Phan et al., 2019; Duong et al., 2020) and few other studies from China (Zhao & Niu, 2023; Feng et al., 2022). The study thus provides empirical evidence from the emerging economies, specifically South Africa a country prone to high economic policy uncetainty.

We follow after Zhao & Niu (2023) to test whether capital expenditure is the mechanism through which EPU affects cash holdings. The results corroborate the findings of Zhao & Niu by showing that capital expenditure positively moderate the relationship between EPU and cash holdings. The results are consistent with the predictions of both the real options theory and the precautionary savings theory.

 doi:10.20944/preprints202507.1040.v1



Unlike the previous studies, the study establishes that the real options theory, and not the precautionary savings theory, explains the effect of EPU on corporate cash holdings. By using firm leverage as an indicator of financial constraints, which would lead firms to hold more precautionary cash reserves, we test whether financial constraints moderate the relationship between EPU and cash holdings. The results are insignificant and thus indicate firms are only influenced by the 'wait and see' strategy to investing when EPU is high as predicted by the real options theory.

The remainder of this paper is structured as follows. The next section presents the literature review and hypothesis development. This is then followed by the discussion of the data and methodology. The following section presents the discussion of the results. The final section concludes the study.

## 2. Literature Review

### *2.1. Economic Policy Uncertainty and Economic Activity*

The consequences of EPU on economic activity are numerous. Adverse effects of economic policy uncertainty include increasing cost of borrowing and making managers more risk averse as they try to avoid risk and uncertain projects (Baker et al., 2016). All these adverse effects culminate in low investment rates as firms hold onto their cash while they wait for policy uncertainty to relinquish. This view is corroborated by Feng et al. (2022) who found that corporate cash holdings have higher market valuation when economic policy uncertainty is high.

EPU can emanate from political uncertainty, fiscal and monetary policy uncertainty (Al-Thaqeb & Algharabali, 2019). Political uncertainty prevailing in South Africa has increasingly been identified as the leading driver of macroeconomic issues plighting the country (Kisten, 2020). The International Monetary Fund's (IMF) October 2017 World Economic Outlook report, highlighted that political uncertainty in South Africa was negatively impacting consumer and business confidence, resulting in dampened economic activity.

Rising uncertainty complicates forecasting and planning, resulting in reallocation of resources as firms scale down on productive activities, and increasing precautionary cash holdings (Bloom, et al., 2016). High uncertainty nudges firms and consumers to delay investing and hiring and delay consumption respectively, setting up a vicious cycle (Aye et al., 2019). In addition, rising uncertainty leads to higher cost of capital for firms (Aye, 2021; Colak et al., 2017). Faced with the hesitancy to invest, slowing consumption and high cost of external funds, this study predicts that firms will increase cash holdings until the uncertainty fog dissipates.

Aisen and Veiga (2013) found that the main driver of political and policy uncertainty is the frequent changes in political heads and cabinet members. These changes have the effect of shortening strategic horizons of the cabinet members and results in different and contradicting economic policies that stunt economic progress. For instance, the 2015 cabinet reshuffles in South Africa, which saw two finance ministers replaced within four days, led to a nose-dive of investor confidence, a weakened Rand and a downward revision of the country's credit rating by Fitch while Standard and Poor gave the country an uncertain credit outlook (Ngwakwe & Sebola, 2019). Firms resort to cash holdings to ameliorate the adverse effects that policy uncertainty has on investment and innovation (Duong et al., 2020).

### *2.2. Corporate Cash Holdings Theories*

The effects of EPU on economic activity can be explained by the real options theory, and the precautionary savings theory (Zhao & Niu, 2023). The real options theory postulates that the value, to a firm, of taking the option to wait or delay irreversible investments is very high in the presence of rising EPU (Drobetz et al., 2018). This is consistent with Gulen and Ion (2016) who found low investment rates in the presence of increasing EPU. Novy and Taylor (2020) observed a major cut in foreign input purchases in response to high uncertainty. EPU also creates a real option value of waiting and conservatism by increasing the risk associated with irreversible investments (Bernanke

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1983), which induces exporting firms to lower investments in existing markets while delaying investments in new markets (Borojo et al., 2022).

According to the precautionary savings theory, high EPU increases the risks of adverse shocks and unexpected contingencies (Gao et al., 2014), stock market volatility (Ghani & Ghani, 2024) and cost of external financing (Xu, 2020). Firms often have to sacrifice what would have been profitable investments due increasing EPU (Zhao & Niu, 2023). This friction in financial markets impedes easy access to external finance and, in some cases, increases finance costs (Makosa et al., 2021). Due to these market frictions caused by high EPU, firms will hold on to more cash reserves to avoid costly opportunity costs (Han and Qiu, 2007).

Thus, in theory, EPU is likely to have an effect on the financial constraints of the firms, especially the risk averse firms. According to Dyreng and Markle (2016), a financial constraint occurs when a company lacks access to external financing or may be faced with high cost of external capital (Liu & Li, 2017).

### *2.3. Hypothesis Development*

Research shows that economic policy uncertainty has adverse impact on corporate activities such as capital investment (Gulen & Ion, 2016: Xie et al., 2019), innovation (Xu, 2020) and mergers and acquisitions (Sha et al., 2020) and ultimately the economy. Al-Najjar (2013) posits that the uncertainty emanating from institutional instability, political upheavals, corruption, and macroeconomic conditions can drive firms towards inefficient practices such as cash holding. Several empirical studies show that economic policy uncertainty is positively related with cash holdings in US firms (Gao et al, 2014; Gulen & Ion, 2016; Phan et al., 2019; Duong et al., 2020).

On the contrary, Hankins et al. (2020) found that spikes in EPU led to a greater dependency on cash holdings in financially constrained firms in the US. This suggests that the negative relationship between EPU and cash holdings is driven by financially constrained firms that are more dependent on cash holdings to sustain operations when faced with EPU shocks. The evidence shows that these R&D is critical when EPU is high and financially constrained firms rely on cash holdings to fund expenditure on R&D (Atanassov et al., 2024; Brown & Petersen, 2015).

In non-US settings, Demir and Ersan (2017) found evidence that firms operating in the BRIC (Brazil, Russia, India, and China) countries prefer to increase their cash holdings with rising EPU. The authors argue that firms use these cash holdings to hedge against uncertainty. Policy uncertainty can increase information asymmetry forcing capital markets to require higher returns on investment, and thus incentivising the increasingly financially constrained firms to accumulate cash (Phan et al., 2019).

The positive relationship between EPU and corporate cash holdings found in emerging economies is contrary to the findings of Hankins et al. (2020) who observed that US financially constrained firms deplete their cash holdings during EPU spikes as they have no other source of finance. Al-Thaqeb et al. (2019) found that the negative effect of EPU on corporate cash holdings is more pronounced in a sample with firms from developed countries. However, In the context of emerging economies, Feng et al. (2022) found high cash holdings in Chinese firms in times of high EPU and when going through external shocks, like the global recession of 2008. Both the real options theory and the precautionary savings theory support the positive relationship between corporate cash holdings and EPU, particularly in emerging economies.

Based on the above discussion, we predict a positive relationship between corporate cash holdings and EPU.

H1: Corporate cash holdings are positively related to EPU

On one hand, the real options theory predicts that during periods of high EPU, the value of the option to wait increases. The precautionary savings theory predicts that when market frictions are amplified by high EPU, corporate managers will hold more precautionary cash (Zhao & Niu, 2023). Both theories thus envisage that corporate managers are more likely to reduce or postpone firms' innovation investment when EPU. We therefore make the prediction that EPU affects cash holdings

 doi:10.20944/preprints202507.1040.v1



through the mechanism of capital expenditure. When EPU is high, firms reduce or postpone investment. Lower levels of investment equate to lower capital expenditure and ultimately higher corporate cash holdings.

H2: Capital expenditure moderates the relationship between EPU and corporate cash holdings

Finally, we test whether precautionary savings theory can explain how EPU impacts corporate cash holdings. The investment changes driven by policy uncertainty (Drobetz et al., 2018; Waisman et al., 2015) could create the volatility of cash flows and capital chain breaks which are highly likely to impact financial constraints. Thus, we introduce an interaction term by interacting financial leverage and EPU. Financial leverage has been used as a proxy for financial constraints (Kaupelytė & Mscichauskas, 2016: Alter & Elekdag, 2020). If the coefficient of the interaction term, EPU*LEV, is positive and significant then financial constraints would be a moderator of the relationship between CASH and EPU. This would confirm that the precautionary savings theory does explain the effect of EPU on corporate cash holdings in South African NFCs.

H3: Financial constraints moderate the relationship between EPU and corporate cash holdings

## 3. Results

This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation, as well as the experimental conclusions that can be drawn.

### *3.1. Sample*

The study focuses on NFCs which are generally considered the main drivers of physical investment in the country. This is also consistent with previous studies that exclude financial firms due to the regulations affecting their liquidity management. NFCs listed on South Africa's Johannesburg Stock Exchange (JSE) are selected on account of the availability of published financial data of these firms unlike their unlisted counterparts. The period of observation extends from 2010 to 2023. Listed firms must publish audited annual reports and are thus a source of secondary verified data for this study. Consistent with Baltagi and Baltagi (2021), we exclude firms with less than two consecutive years of data. This approach limits the extent of survivorship bias in the data. The sample consists annual data of 184 NFCs equivalent to 2 392 0bservations.

### *3.2. Variables*

Consistent with prior literature (Zhao & Niu, 2023; Li, 2019; Duong et al., 2017), the study uses cash holdings (CASH) as its dependent variable. CASH is measured as Cash and short-term investments deflated by total assets. The main independent variable of interest is EPU, measured by the WUI in place of the EPU index of Baker et al. (2016) which excludes South Africa. FRED reports the WUI for various countries each quarter. We average the quarterly WUI to come up with an annual measure to represent EPU.

Other firm-specific, institutional, and macroeconomic factors are included as independent variables. Size (the natural logarithm of the book value of total assets in Rands), Leverage (the total of short-term debt and the long-term debt standardised by the total assets of firm), MTB (total assets less book value of equity plus market value of equity, scaled by total assets of firm), Dividends (dividend yield). Loq (Net working capital less cash scaled by the total assets of firm), Cash flow (CF) (cash flow interest cover), Capital expenditure (capital expenditures divided by total assets). ΔGDP, which is the rate of change in gross domestic product, was also included to control for factors related to each country's economy and wealth.

The firm-specific secondary data is sourced from IRESS Expert database while GDP data was sourced from the WDI.

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### *3.3. Baseline Regression*

To investigate the effect of EPU on corporate cash holdings, we use the model below as the Vaseline regression.

$$CASH_{i,t} = \alpha_0 + \alpha_1 EPU_{i,t} + Control + \varepsilon_{i,t} \quad (1)$$

where the depend variable is $CASH_{i,t}$ measured as the ratio of cash and cash equivalents deflated by total assets of firm *i* at the end of year *t*. The main dependent variable is EPU (the annual average of the quarterly WUI reported by FRED). Similar to past studies (Hankins et al., 2020; Feng et al., 2022), this study controls for the following firm specific factors e, SIZE, LIQ, CAPEX, LEV, DIV, MTB, C/FLW and ROA. In line with Li et al. (2023), this study includes macro-level control variable, GDP growth rate to mitigate the omitted variable problem.

The detailed definitions of the control variables are in the Appendix.

### *3.4. The Mediating Role of Capital Expenditure*

Following Zhao and Niu (2023), we test whether capital expenditure is the mechanism through which EPU impacts on CASH. We introduce the interaction variable, $EPU_{i,t}$*$CAPEX_{i,t}$, into equation 1, transforming it into equation 2. If the coefficient of $EPU_{i,t}$*$CapeX_{i,t}$ is positive and significant, then this supports the hypothesis that capital expenditure moderates the relationship between economic policy uncertainty and corporate cash holdings.

$$CASH_{i,t} = \alpha_0 + \alpha_1 EPU_{i,t} + \alpha_2 EPU_{i,t}*CAPEX_{i,t} + \alpha_3 CAPEX_{i,t} + Control + \varepsilon_{i,t} \quad (2)$$

## 4. Discussion

**Table 1.** Summary statistics. Panel A: Descriptive Statistics

| Variable | Obs | Mean | Std. dev. | Min | Max |
|---|---|---|---|---|---|
| Firm level | | | | | |
| CASH | 2 576 | 0,098 | 0,123 | 0,000 | 0,999 |
| SIZE | 2 576 | 13,265 | 5,709 | 0,000 | 20,807 |
| LEV | 2 576 | 0,154 | 0,209 | 0,000 | 1,957 |
| LIQ | 2 576 | 0,127 | 0,222 | -0,987 | 0,996 |
| CAPEX | 2 576 | 0,054 | 0,074 | 0,000 | 0,968 |
| C/FLW | 2 576 | 87,176 | 1047,935 | -1723,670 | 37271,430 |
| DIV | 2 576 | 3,615 | 10,098 | 0,000 | 313,430 |
| MTB | 2 576 | 2,836 | 39,482 | -5,990 | 1611,100 |
| ROA | 2 576 | 8,292 | 14,111 | -179,010 | 129,640 |
| Macro-level | | | | | |
| EPU | 2 576 | 0,653 | 0,323 | 0,262 | 1,343 |
| ΔGDP | 2 576 | 0,143 | 2,336 | -7,107 | 3,662 |

Panel B: Pearson correlation matrix of all variables

| | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) | 11) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | CASH | 1,000 | | | | | | | | | | |
| 2) | EPU | 0,012 | 1,000 | | | | | | | | | |
| 3) | ΔGDP | -0,005 | -0,009 | 1,000 | | | | | | | | |
| 4) | SIZE | 0,251 | 0,035 | -0,095 | 1,000 | | | | | | | |
| 5) | LEV | -0,071 | 0,007 | -0,080 | 0,361 | 1,000 | | | | | | |
| 6) | LIQ | 0,484 | 0,026 | -0,011 | 0,139 | -0,218 | 1,000 | | | | | |
| 7) | CAPEX | 0,023 | 0,033 | 0,021 | 0,289 | 0,230 | -0,079 | 1,000 | | | | |

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| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8) | C/FLW | 0,078 | 0,046 | -0,023 | 0,004 | -0,055 | 0,057 | -0,005 | 1,000 | | | |
| 9) | DIV | 0,102 | -0,031 | -0,088 | 0,133 | 0,026 | 0,053 | -0,011 | 0,015 | 1,000 | | |
| 10) | MTB | -0,005 | -0,020 | 0,016 | 0,028 | 0,120 | -0,021 | 0,216 | -0,002 | -0,011 | 1,000 | |
| 11) | ROA | 0,199 | 0,001 | 0,116 | 0,214 | 0,103 | 0,161 | 0,143 | 0,056 | 0,096 | 0,019 | 1,000 |

Table 1 presents the descriptive statistics and the Pearson correlation matrix for the variables used in the study. The sample period extends from 2010 to 2023. The variables are defined in the methodology section as well as the Appendix. Panel A reports the descriptive statistics of all the variables, while Panel B presents the Pearson correlation matrix.

### *4.1. Summary Statistics*

Table 1 above reports the descriptive statistics of all the variables employed in the study. Panel A shows the descriptive statistics with Panel B presenting the Pearson correlation matrix. In Panel A we observe that the mean for CASH is 0,098, indicative the average South African NFCs holds 9,8% of its total assets in the form of cash. This is lower than the 13% reported in Chireka and Moloi (2023). However, Chireka and Moloi (2023) covered the period from 2000 to 2020, while the current study only included the period from 2010 to 2023.

Panel B shows the correlation coefficients of the variables. All the coefficients are significantly less than 0,8 indicating that there are no correlation issues amongst the variables. We find that EPU is positively correlated with CASH but negatively associated with ΔGDP. These relationships are consistent with the thesis that high EPU induces NFCs to hold more cash through delaying investments, which in turn has a negative impacted on economic growth.

### *4.2. The Economic Policy Uncertainty and Corporate Cash Holdings Nexus*

#### 4.2.1. Baseline Regression Results

The study uses the model below to investigate the impact of EPU on cash holdings.

$$CASH_{i,t} = \alpha_0 + \alpha_1 EPU_{i,t} + Control + \varepsilon_{i,t} \quad (1)$$

where the depend variable is $CASH_{i,t}$ measured as the ratio of cash and cash equivalents deflated by total assets of firm *i* at the end of year *t*. The main dependent variable is EPU (the annual average of the quarterly WUI reported by FRED). The control variables include ΔGDP, SIZE, LIQ, CAPEX, LEV, DIV, MTB, C/FLW and ROA. The detailed definitions of the control variables are in the Appendix.

To deal with endogeneity and the problem of unobservable omitted variables, we use the System Generalized Method of Moments (Sys-GMM) estimation (Arellano-Bover, 1995; Blundell-Bond,1998). We also use the Difference GMM (Diff-GMM) developed by Arellano-Bond (1991) for robustness. These dynamic methods employ the Generalized Method of Moments (Hansen 1982) to rectify endogeneity issues, measurement error, omitted variable bias, and time invariant country specific effect that are often present in pooled ordinary least squares, fixed effects and random effects estimations. Sys-GMM is recommended over the alternative Diff-GMM since the later estimates are unreliable due to the high persistence of the data series over time (Blundell and Bond 1998).

Table 2 presents the results of equation 1. The results show that the coefficient of EPU is positive and significant at the 10% level, signifying that EPU has a positive influence on CASH. This positive association is robust across the two dynamic estimations used. This result is consistent with the prediction of both the real options and precautionary savings theories. The positive association between EPU and CASH was also found in China (Zhao & Niu, 2023; Feng et al., 2022), in the BRIC countries (Brazil, Russia, India, and China) with South Africa excluded (Demir & Ersan, 2017) and in the USA (Phan et al., 2019; Duong et al., 2020).

 doi:10.20944/preprints202507.1040.v1



**Table 2.** Economic policy uncertainty and cash holdings.

| Variable | D-GMM | Sys-GMM |
|---|---|---|
| Cash L1 | 0,678*** | 0,630*** |
| | (0,029) | (0,022) |
| EPU | 0,008* | 0,010* |
| | (0,005) | (0,005) |
| GDP | -0,001* | -0,001* |
| | (0,001) | (0,001) |
| SIZE | 0,008*** | 0,008*** |
| | (0,001) | (0,001) |
| LEV | -0,075*** | -0,080*** |
| | (0,018) | (0,017) |
| LIQ | 0,257*** | 0,249*** |
| | (0,018) | (0,016) |
| CAPEX | -0,087*** | -0,085*** |
| | (0,030) | (0,029) |
| Cashflow | 0,000 | 0,000 |
| | (0,000) | (0,000) |
| DIV | 0,000 | 0,000* |
| | (0,000) | (0,000) |
| MTB | 0,000** | 0,000** |
| | (0,000) | (0,000) |
| ROA | -0,000** | -0,000** |
| | (0,000) | (0,000) |
| Number of observations | 2 208 | 2 392 |
| Number of groups | 184 | 184 |

This table presents the results of the regression of corporate cash holdings against economic policy uncertainty and a number of control variables (Equation 1). The dependent variable is CASH. Detailed definitions of all variables are in the Appendix. Standard errors are reported in parentheses. *, ** and *** represent statistical significance at the 10%, 5%, and 1% levels respectively.

The findings of this study also reveal that GDP is negatively related with corporate cash holdings, confirming the thesis that cash reserves are lazy capital which is detrimental to economic growth. The results for the firm specific control variables are consistent with the findings of past studies (Chireka & Fakoya, 2017; Duong et al., 2017; Zhao & Niu, 2023).

4.2.2. The Moderating Role of Capital Expenditure

This study uses equation 2 below to test the hypothesis that capital expenditure moderates the relationship between economic policy uncertainty and corporate cash holdings. If the coefficient of $EPU_{i,t}$*$Capex_{i,t}$ is positive and significant, then this supports the prediction that capital expenditure is the channel through which EPU impacts corporate cash holdings.

$$CASH_{i,t} = \alpha_0 + \alpha_1 EPU_{i,t} + \alpha_2 EPU_{i,t} * CAPEX_{i,t} + \alpha_3 CAPEX_{i,t} + Control + \varepsilon_{i,t} \quad (2)$$

Table 3 below presents the results for equation 2. The sys-GMM estimation is used due to its superiority over the diff-GMM. The coefficient of CAPEX*EPU is both positive and significant at 1%. The coefficient for EPU remains is now insignificant. These findings support our prediction that when EPU is high, firms reduce or delay capital expenditure as they adopt the 'wait and see' approach. Reduced capital expenditure leads to increased cash holdings. The results of the control variables are consistent with the results of equation 1.

 doi:10.20944/preprints202507.1040.v1



**Table 3.** The mediating role of capital expenditure.

| Variables | Results |
|---|---|
| CASH L1. | 0,636*** |
| | (0,022) |
| EPU | -0,003 |
| | (0,006) |
| CAPEX*EPU | 0,185*** |
| | (0,062) |
| CAPEX | -0,241*** |
| | (0,059) |
| GDP | -0,001* |
| | (0,001) |
| SIZE | 0,008*** |
| | (0,001) |
| LEV | -0,081*** |
| | (0,017) |
| LIQ | 0,249*** |
| | (0,016) |
| Cashflow | 0,000 |
| | (0,000) |
| MTB | 0,000*** |
| | (0,000) |
| ROA | 0,000** |
| | (0,000) |
| _cons | -0,083*** |
| | (0,011) |

This table presents the results of the regression of the moderating role of capital expenditure on the relationship between corporate cash holdings against economic policy uncertainty and a number of control variables (Equation 3). The dependent variable is CASH. Detailed definitions of all variables are in the Appendix. Standard errors are reported in parentheses. *, ** and *** represent statistical significance at the 10%, 5%, and 1% levels respectively.

We make a new argument that the results above support the real option theory of cash holdings. According to this theory, firms find the value of waiting or delaying investments when EPU is high to be greater than the benefits of investing. As such, when EPU is high firms reduce capital expenditure and increase cash holdings. To the best of our knowledge, no study has linked the moderating role of capital expenditure on the EPU and corporate cash holdings nexus to the real options theory.

Next, we test whether the precautionary savings motive has explanatory power of corporate cash holdings when EPU is high.

4.2.3 The Moderating Role of Financial Constraints

$$CASH_{i,t} = \alpha_0 + \alpha_1 EPU_{i,t} + \alpha_2 EPU_{i,t} * LEV_{i,t} + \alpha_3 LEV_{i,t} + Control + \varepsilon_{i,t} \quad (3)$$

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**Table 4.** The mediating role of financial constraints.

| Variables | Sys-GMM |
|---|---|
| CASH L1 | 0,630*** |
| | (0,022) |
| EPU | 0,010* |
| | (0,006) |
| LEV*EPU | -0,017 |
| | (0,025) |
| LEV | -0,067*** |
| | (0,026) |
| ΔGDP | -0,001 |
| | (0,001) |
| SIZE | 0,008*** |
| | (0,001) |
| LIQ | 0,249*** |
| | (0,016) |
| CAPEX | -0,087*** |
| | (0,029) |
| DIV | 0,000* |
| | (0,000) |
| MTB | 0,000** |
| | (0,000) |
| ROA | 0,000** |
| | (0,000) |
| _cons | -0,094*** |
| | (0,011) |

This table presents the results of the regression of the moderating role of financial constraints on the relationship between corporate cash holdings against economic policy uncertainty and a number of control variables (Equation 3). The dependent variable is CASH. Detailed definitions of all variables are in the Appendix. Standard errors are reported in parentheses. *, ** and *** represent statistical significance at the 10%, 5%, and 1% levels respectively.

The results show that the coefficient of the interaction term, EPU*LEV is insignificant. This suggest that financial constraints (measured by financial leverage) do not moderate the relationship between EPU and CASH. Moreover, the results show that despite the inclusion of the interaction term, the impact EPU of CASH remains significant and positive. The impact of LEV on CASH also remains negative and significant as reported in the baseline results in Table 2. The results show that EPU*LEV has no mediating role and thus we reject H3 and conclude that the precautionary savings theory does not explain the increase of corporate cash holdings in times of elevated uncertainty.

While the precautionary savings theory posits that firms tend to increase their savings to mitigate potential negative impacts by proactive investment behaviour (Han and Qiu, 2007), this study finds no evidence that firms increase cash holdings cash to mitigate the impacts of higher economic uncertainty on firms' financing activities and decrease the operating risks. This is contrary to prior empirical findings (Drobetz et al., 2018; Colak et al., 2017), that firms increase their precautionary cash holdings when facing greater EPU.

## 5. Conclusions

This paper is motivated by the sharp rise in global economic policy uncertainty (EPU) and corporate cash holdings over the past two decades. Accordingly, it investigates whether there is a reliable relationship between economic policy uncertainty, proxied by the WORLD Uncertainty Index reported by FRED, and corporate cash holdings in South African listed non-financial firms for the

 doi:10.20944/preprints202507.1040.v1



period from 2010 to 2023. The findings suggest an economically meaningful and statistically positive relationship whereby higher economic policy uncertainty is associated with increasing corporate cash holdings. Moreover, this effect is through the channel of capital expenditure as firms reduce or delay investment in the face of increasing uncertainty. The indirect consequence is higher cash holdings in these firms. Importantly, this paper differs from other studies by explicitly testing the relevance of the real options theory and the precautionary savings theory.

To the best of our knowledge, this is the first paper to demonstrate that real options theory has more explanatory power on the impact of economic policy uncertainty on corporate cash holdings than the precautionary savings theory. The information available within the economy forms the foundation upon which firms and individuals base their economic decisions. However, the ongoing implementation of policies generates an environment of uncertainty, acting as a dynamic catalyst for economic fluctuations. Heightened economic policy uncertainty fosters a "wait-and-see" approach among firms, leading to delays in initiating investment projects and prompting firms to adopt risk-averse strategies, such as increasing cash holdings.

The study provides valuable insights into the corporate cash holdings dynamics within the context of EPU. The findings offer practical guidance to stakeholders, including managers, shareholders, creditors, and policymakers, by clarifying the mechanism under which cash holdings are more likely to increase or decrease in response to elevated levels of EPU. Policymakers should manage and timeously communicate policy changes to the business community due to the adverse effects of policy uncertainty on firms' investment activities and cash holdings.

**Author Contributions** "Conceptualization, Chireka. T.; methodology, Chireka. T.; software, Chireka. T..; validation, Sibanda. M.; formal analysis, Chireka. T.; investigation, Chireka. T.; resources, Chireka.T.; data curation, Chireka.T.; writing—original draft preparation, Chireka.T.; writing—review and editing, Sibanda.M.; visualization, Chireka.T.; supervision, Moloi.T.; project administration, Moloi.T. All authors have read and agreed to the published version of the manuscript."

**Institutional Review Board Statement**: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of UNIVERSITY OF JOHANNESBURG ((SAREC20221124/04 and 2022/11/24). Ethical review and approval were waived for this study due to REASON (please provide a detailed justification THE USE OF DATA TAKEN PUBLISHED FINANCIAL STATESEMENTS AND OTHER PUBLICLY AVAILABLE ECONOMIC DATA. COMPANIES NAMES WERE NOT DISCLOSED.

**Data Availability Statement:** The data used in this study is available from the corresponding author upon request.

**Conflicts of Interest:** The authors declare no conflicts of interest

## Abbreviations

The following abbreviations are used in this manuscript:

| | |
|---|---|
| JSE | Johannesburg Stock Exchange |
| EPU | Economic Policy Uncertainty |
| NFC | Non-financial corporates |

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