Migration fears and exchange rate volatility in France, Germany, and the UK: A GARCH-MIDAS framework

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Abstract

We explore the role of fear associated with migration in predicting exchange rate volatility of Germany, France, and the United Kingdom within the context of the generalized autoregressive conditional heteroscedastic (GARCH) mixed-data-sampling (MIDAS) framework using United States dollar (USD) as the reference currency. While we adopt the quarterly Migration Fear Index and daily exchange rate of Euro (for France and Germany) and GBP (for the UK) to USD for the nexus between migration anxiety and exchange rate volatility, we equally augment our model with Migration Policy Uncertainty (MPU) to examine the joint predictability of the two migration fears proxies on exchange rate volatility. We conduct an empirical analysis that covers the full sample period which is further partitioned into pre- and post-GFC periods to see if the nexus is sensitive to crises periods. We find evidence of migration fears predicting exchange rate volatility of the G-3 country considered, given the statistical significance of our model's slope coefficient. Although the influence of migration fears on the strengths of the euro and pounds relative to the USD differ, as migration fear causes the former to depreciate and the latter to appreciate, both currencies exhibit high volatility persistence during the period under scrutiny. Our findings have implications for policy-makers on whose shoulders the responsibility of exchange rate management falls.

Keywords: Exchange rate, Migration, Fear, GARCH-MIDAS
JEL Classification: C53, F22, F31

1. Introduction

Migration issues have remained a focal point in international political discussions and agenda, with continuous unprecedented migration movement from less developed countries to developed societies (Guenichi et al., 2022). Factors including geopolitical crises, violence, civil wars, political instability, changing climate, poverty, and economic deprivation are among others cited as the leading causes of increased migration waves (Kocak and Yucel, 2022). There is evidence that large migration-induced population spikes have significant implications on the local labour market, and demand for social and economic infrastructures such as housing, education, health, social services, and the overall government budget (Donadelli et al., 2020; Salisu, Olaniran and Vo, 2024). Attention in the literature has been on the implications of migration-induced uncertainties on macroeconomic indicators including prices (Liu, 2011; Salisu, Muhammad and Saliu, 2024), employment (Baas et al., 2009; Constant, 2011; Kahanec et al., 2009; Kahanec and Zimmermann, 2016), wages (Baas et al., 2009; Blanchflower and Shadforth, 2009; Farbenblum and Berg, 2018; Łaciak and Segeš Frelak, 2018) as well as output (Salisu and Salisu, 2024). The impact of migration on the financial sector has also been considered, particularly the impact of migrant remittances to the origin countries (De Haas, 2005).

It has been argued that the international financial consequences of immigration exert a substantial influence on the choice of exchange rate regimes in the developing world, with migrant remittances the most significant source of external finance for these countries (Singer, 2010). The afore-reviewed shows, however, how scanty the literature has been on the effects of migration-related sentiments on the exchange rate of the corresponding countries. To fill this gap, we test the hypothesis that migration fears heighten the volatility of the exchange rate of the euro and GBP, using France, Germany, and the United Kingdom as our sample countries. Our interest in these countries, apart from being the countries where migration fear indexes are readily available, they are equally among the most sought-after destination countries for world migrants[1].

This study, therefore, aims to analyze the effects of migration fears and migration-induced economic uncertainties on correspondent countries' exchange rates. We employed the news-based migration fear index constructed by Baker et al. (2016). The index was constructed based on newspaper coverage of specific migration-related and uncertainty terms. Given the statistical significance of our estimator's slope coefficient, our overall results show that migration fear

[1] See for example https://best-citizenships.com/2021/09/29/10-most-popular-countries-for-immigration/

contains some predictive information for the exchange rate volatility of the euro and GBP, as it makes the former depreciates and the latter appreciates. Following this introduction, the rest of the paper is structured as follows. Section 2 discusses the data and the summary statistics. The empirical methodology is discussed in Section 3 while Section 4 discusses the results. Section 5 concludes the paper.

2. Data and Summary Statistics

Our data set is made up of the Migration Fear Index (MFI), Migration Policy Uncertainty (MPU) index as well as the exchange rates of the considered countries to US Dollars. In particular, we utilize quarterly data for the Migration Fear Index (MFI) and Migration Policy Uncertainty (MPU) index between 1990 and 2022 as constructed by Baker et al., (2016) from the companion website https://www.policyuncertainty.com/immigration_fear.html. The authors constructed the MFI for four countries comprising France, Germany, the UK, and the US by counting the number of newspaper articles from the respective countries with at least one term from migration-related and fear-related terms sets. The number of article counts was then divided by the total count of newspaper articles within the same calendar quarter and country. The considered terms for migration include "border control", "Schengen", "open borders", "migrant", "migration", "asylum", "refugee", "immigrant", "immigration", "assimilation", and "human trafficking". On the other hand, fear-related terms considered include "anxiety", "panic", "bomb", "fear", "crime", "terror", "worry", "concern", and "violent". Additionally, we collect the corresponding countries' daily exchange rates comprising the Euro for France and Germany and the Great Britain Pounds for UK, with the US dollar as the reference country currency. The exchange rate series was collected from the Organisation for Economic Co-operation and Development (OECD) Statistics database (see https://stats.oecd.org). It is important to state that the migration indices of some countries such as France and Germany begin in 1999 and those of the former stop in 2019. Owing to this variation in the data scope, the start and end dates of each variable and country considered are highlighted in Table 1.

Given the foregoing, Table 1 below indicates the summary statistics of the choice of variables under examination. In the Table, the average value of each variable over time is captured by mean, while the standard deviation depicts the dispersal of the series around their respective means following any disturbance in an economy. We equally report the behavior of the series in

terms of flatness and peakedness of the distribution. Thus, as shown in Table 1, it is obvious that the UK has the highest MPU average followed by Germany and then France. As for the fear associated with migrants' influx/outflux, Germany, with 272.69, harbors the highest fear while France has the least of the three countries. As for the currency exchange, while 1.21 Euro is exchanged for 1 dollar, 1.57 GBP is exchanged for 1 dollar, on average. The fluctuation in the series captured by standard deviation is most pronounced for the MPU and fear index in UK and Germany, respectively. Similarly, the rate at which currency changes is higher for the UK (0.21) than for France and Germany (0.15). Moreover, all the series but Euro/USD, as indicated by the skewness, are positively skewed, while the kurtosis values show all the series barring the exchange rate is highly peaked given their values greater than 3. Finally, the co-movement between the countries' respective migration fear index and exchange rates is shown in Figure 1. We observe that somewhat fluctuations in the fear index are reflected in the exchange rate movements of the three countries under examination.

Table 1: Preliminary analysis

	France		Germany		UK		EXR	
	MPU_Migrant_index	Fear_index	MPU_Migrant_index	Fear_index	MPU_Migrant_index	Fear_index	Euro/USD	GBP/USD
Mean	170.3725	143.0260	186.1323	272.6888	360.4015	175.4668	1.2062	1.5738
Std. Dev.	122.5649	63.3072	180.2681	244.3830	509.7702	121.6958	0.1526	0.2059
C.V	71.9394	44.2627	96.8494	89.6197	141.4451	69.3555	12.6501	13.0802
Skewness	1.1706	1.1464	1.3445	1.7458	2.5440	1.1259	-0.0771	0.2285
Kurtosis	4.1975	4.7376	3.8927	6.3443	10.4477	3.4744	2.7373	2.5637
Nobs	84	84	96	96	132	132	8252	10517
Frequency	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Daily	Daily
Start Date	1999-Q1	1999-Q1	1999-Q1	1999-Q1	1990-Q1	1990-Q1	Jan. 4, 1999	Jan. 2, 1990
End Date	2019-Q4	2019-Q4	2022-Q4	2022-Q4	2022-Q4	2022-Q4	Dec. 31, 2022	Dec. 31, 2022

Note: EPU_Migrant_index is the uncertainty associated with migration while Fear_index denotes the fear due to the inflow/outflow of migrants into/out of a country. EXR is the rate at which our sample currencies are exchanged for USD. Meanwhile, Std. Dev. means standard deviation, and C.V denotes the coefficient of variation computed as (std. dev./mean)*100. Nobs is the number of observations.

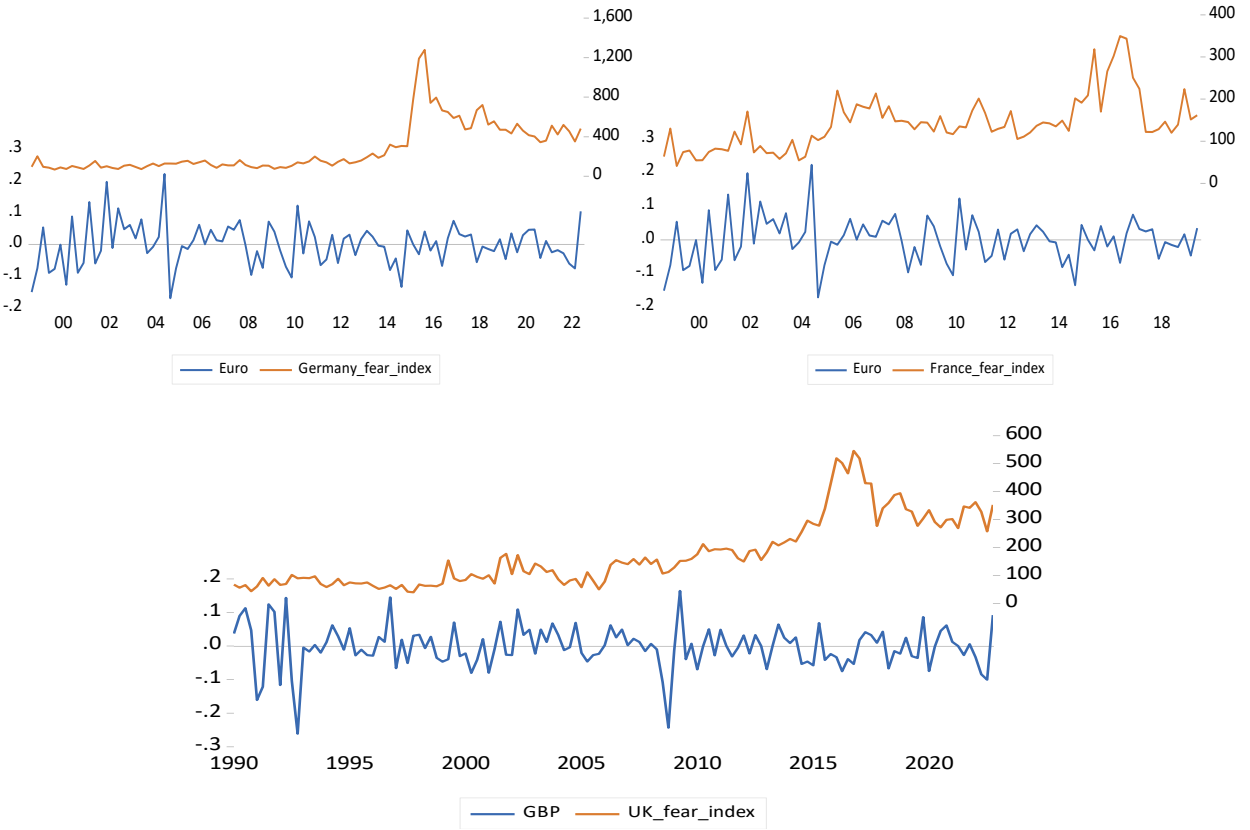

Figure 1: Graphical representations of exchange rate and migration fear nexus
Note: The exchange rate is expressed in returns as 100*log (EXR_t/EXR_{t-1}), where EXR is the associated currency exchange rate to US Dollars.

3. Methodology

The GARCH-MIDAS technique which accommodates the use of mixed data frequencies in a single model is employed to examine the migration fear-exchange rate connections (see Salisu et al., 2022 for details). Essentially, our exchange rate data is available in daily frequency while that of the migration fear index is available quarterly. Our GARCH-MIDAS model has three equations such as the mean equation, and conditional variance components of the model highlighting the short-run and long-run of the components following equations 1, 2, and 3, respectively.

$$EXR_{i,t} = \chi + \sqrt{L_i * l_{i,t}} * \eta_{i,t},\ \eta_{i,t} \mid \varsigma_{i-1,t} \sim N(0,1) \forall i = 1,2,3,...,N_t; t = 1,2,3,...,T. \quad (1)$$

$$l_{i,t} = (1 - \partial - \ell) + \partial \frac{(EXR_{i-1,t} - \chi)^2}{L_i} + \ell l_{i-1,t} \quad (2)$$

$$L_i = y + \phi \sum_{p=1}^{p} \varphi_p(\omega_1, \omega_2) v_{i-p} \quad (3)$$

$EXR_{i,t}$ in equation (1) is the exchange rate returns of the individual country considered at time t, and it is computed as the log-returns of the exchange rate series (i.e. 100*log (EXR_t/EXR_{t-1})); χ denotes the unconditional mean of $EXR_{i,t}$; the conditional variance $\sqrt{L_i * l_{i,t}}$ is decomposed into the long run and short run components as L_i and $l_{i,t}$, respectively. Similarly, $\eta_{i,t}$ is the disturbance term which follows a Gaussian distribution, and $\varsigma_{i-1,t}$ is the information set available on $(i-1)^{\text{th}}$ day in a quarter t. Furthermore, from the conditional variance dynamics of the short-run component in equation (2), the ∂ and ℓ which represent the ARCH and GARCH terms, respectively are technically conditioned to be positive and/or at least zero ($\partial > 0$ and $\ell \geq 0$) and sum up to less than unity $(\partial + \ell < 1)$. Moreover, $l_{i,t}$ is for the high-frequency (daily exchange rate) data, as L_i may also appear in the same frequency as $l_{i,t}$. Thus, our low-frequency series of the long-run component (MFI) is transformed into daily frequency, without loss of generality based on the formulation in equation (3). Therefore in equation (3), the y and ϕ which indicate the intercept and the predictability coefficient of the exogenous predictor (v_{i-p}) form the parameters in the long run component. It is essential to state that $\varphi_p(\omega_1, \omega_2)$ is the associated weighting scheme required to identify the model parameters, such that $\varphi_p(\omega_1, \omega_2) \geq 0$, and p runs from 1 to P.

Consequent upon the foregoing, we carefully examine the effect of fear due to migration (proxied by MFI) on the exchange rate volatility of the countries under examination. Following this, we augment the former with migration policy uncertainty (MPU) to ascertain its influence on volatility. Thus, the MIDAS slope coefficient (ϕ) provides the direction and significance of the impact of fear associated with migration on exchange rate volatility. Hence, when this slope is significant, it implies that migration fear does have an impact on exchange rate volatility, as the associated sign shows whether the former makes the latter appreciate or depreciate considerably.

4. Result and Discussion

Here in this section, we present the results of our findings for the predictability/effect of migration fear on the exchange rate volatility of France, Germany, and the United Kingdom. Our choice of geographical samples is hinged on four of the seven most industrialized countries that the migration fear index has covered[2]. International migration has developed into a common occurrence since the middle of the 20th century in almost all industrialized nations, and it has significantly shaped the global labour market (Gao, 2015). Economic theories view labour migration as an investment in human capital whereby employees aim to maximize household income while lowering financial risks (see Gao, 2015). However, migration inflow exerts pressure on a destination country's currency demand, thereby heightening its volatility. Consequently, investigating how the exchange rate responds to rising migratory anxiety would be a worthwhile scholarly endeavor, especially as we add to the existing body of knowledge on international finance. Essentially, we examine the effect of migration anxiety on exchange rate volatility, while our model is afterward augmented with migration policy uncertainty to examine the joint effect of the two migration indices on the volatility of the exchange rate. In doing this, the traditional GARCH-MIDAS model that incorporates realized volatility (RV) of the exchange rate is used as our benchmark model. Examining this effect, we focus on the statistical significance of the GARCH-MIDAS slope coefficient (ϕ), among other significant parameters of the model, as we report the results (as in Table 2) for the full sample period. To see whether the effect is sensitive to crises, we further partition our sample into pre- and post-GFC periods.

Our findings suggest that the influence of any shock, such as migration wave, on the "G-3" foreign exchange markets tends to last for a considerable amount of time as the sum of ARCH and GARCH coefficients across all the panels is close to one for all the countries taken into account. In essence, we discover evidence for the high volatility persistence for each of the three countries considered. Similar to this, except for a few instances in panel C, all estimates of adjusted beta weight for all countries are more than one and statistically significant. As a result, we find evidence that shows that the weighting method gives recent observations more weight than those that are distant in time.

[2] Baker et al. (2016) constructed the MFI for France, Germany, France, and the USA. However, since this study takes USD as its reference currency, the impact of migration fear on the US exchange rate is suppressed.

As the focus of this study, we examine how the fear of migration affects the volatility of the pound and euro, relative to the dollar. The slope coefficient (ϕ) being not noticeably different from zero, indicating no predictability in this case, is the null hypothesis. Our estimated migration-based model's slope coefficient has a very high level of statistical significance. As a result, the migration indices can accurately predict exchange rate volatility. Specifically, both MFI and the MPU augmented models are found to be significantly positive for France and Germany across all the panels (save for a rare instance for Germany_MPU_migration in panel C). Put technically, the fear due to migration - MFI (which is further reinforced by MPU) causes the euro to depreciate relative to the US dollar. This result can be explained via remittances and labour market channels. Inflow of migrants into France and Germany may exert pressure on Euro as immigrants send remittances back to their home countries. The incessant conversion of Euro into US dollar increases the demand for dollar while raising the supply of Euro in the foreign exchange market, and consequently leading to Euro depreciation. Furthermore, a significant influx of low-skilled labour may put downward pressure on wages in specific sectors of these countries. This may result into lower productivity or reduced competitiveness of the France and Germany exports, further weaken the demand for Euro and contributing to its depreciation.

On the other hand, the United Kingdom appears to benefit from the influx of migrants as her currency gains more value relative to the dollar, especially when the sample period is partitioned into pre- and post-GFC periods. No doubt, the UK has been enjoying the influx of migrants across all countries of the world in recent times following her various employment policies into various segments of her economy as well as her 'enticing' asylum policies. The influx of migrants into the UK increases the demand for the British pound, potentially driving its appreciation relative to the U.S. dollar. The influx of migrants into the UK can lead to an appreciation of the British pound through several channels. Migrants boost economic activity by increasing productivity and demand for goods and services, which may attract foreign investment and drive up demand for the pound. Additionally, inflow of capital via foreign investment or remittances sent to migrants from abroad further supports the pound by increasing currency conversions into GBP. Positive market perceptions of migration's economic benefits, such as addressing labour shortages and fostering innovation, can also enhance investor confidence, contributing to the pound's appreciation.

Our findings are not standing aloof to what is obtainable in the extant literature relating migration fear to macroeconomic and financial fundamentals. For instance, Korus and Celebi (2019), analyzing the impact of Brexit-related events on the spot exchange rate of GBP find that news related to Brexit indeed impacts GBP. Taking a step forward by disentangling the news into 'good' and 'bad', the authors find that the latter weakens the strength of the GBP relative to the euro and US dollar, while the former strengthens the currency (GBP). Similarly, the referendum on Brexit seems to have significantly impacted both GBP/euro and GBP/US dollar exchange rate volatility. Khoudour-Castéras (2005) also establishes a strong link between the exchange rate regime and the labour movement. In the same token, Czudaj (2018), while investigating the nexus between migration fear and stock market volatility confirms the significant role of migration fear sentiments on the volatility of the stock market.

Table 2: Migration fear – exchange rate volatility connection

Panel A: Full sample period									
	France			Germany			United Kingdom		
	RV-based GARCH	France_MPU_migration	France_fear_migration	RV-based GARCH	Germany_MPU_migration	Germany_fear_migration	RV-based GARCH	UK_MPU_migration	UK_fear_migration
μ	-4.1363e-06	-1.4458e-06	-8.0661e-06	-8.4759e-06	0.0009[a]	-1.8764e-05	1.2623e-05	0.0002[c]	3.4706e-06
	(5.9996e-05)	(5.6987e-05)	(0.0002)	(5.2082e-05)	(6.4811e-05)	(5.0289e-05)	(4.5007e-05)	(0.0001)	(4.6801e-05)
∂	0.0125[a]	0.0181[a]	0.0500[a]	0.0177[a]	0.0503[a]	0.0223[a]	0.0540[a]	0.0503[a]	0.0606[a]
	(0.0004)	(0.0008)	(0.0016)	(0.0006)	(0.0014)	(0.0007)	(0.0015)	(0.0030)	(0.0018)
ℓ	0.9875[a]	0.9816[a]	0.9000[a]	0.9822[a]	0.9006[a]	0.9776[a]	0.9371[a]	0.9005[a]	0.9241[a]
	(0.0004)	(0.0008)	(0.0025)	(0.0006)	(0.0015)	(0.0007)	(0.0022)	(0.0097)	(0.0026)
ϕ	-0.1948[a]	0.0218[a]	0.1000[a]	-0.0361[a]	0.0045[a]	0.1189[b]	-0.0018[a]	0.0323[a]	0.0018[a]
	(0.0193)	(0.0033)	(0.0021)	(0.0042)	(9.7228e-06)	(0.0566)	(0.0002)	(0.0019)	(0.0003)
w	1.2801[a]	49.994[a]	5.0000[a]	49.97[a]	5.0000[a]	4.0468[b]	49.476[a]	5.0000[a]	1.001[a]
	(0.1264)	(11.25)	(0.1332)	(3.64)	(0.0894)	(1.7409)	(18.947)	(0.5673)	(0.1607)
m	0.0010[a]	5.847e-05[a]	5.656e-05[a]	0.0009[a]	2.6093e-05[a]	0.0006[c]	4.1937e-05[a]	0.0002[a]	3.3437e-05[a]
	(7.7925e-05)	(8.6256e-06)	(1.8063e-09)	(9.6091e-05)	(5.8051e-08)	(0.0003)	(2.5127e-06)	(1.0153e-05)	(1.3567e-06)
Panel B: Pre-GFC sample period									
	France			Germany			United Kingdom		
	RV-based GARCH	France_MPU_migration	France_fear_migration	RV-based GARCH	Germany_MPU_migration	Germany_fear_migration	RV-based GARCH	UK_MPU_migration	UK_fear_migration
μ	0.0003	0.0001	0.0001	0.0003	0.0002	0.0002	0.0001	0.0001	0.0001
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(8.4031e-05)	(8.465e-05)	(8.4738e-05)
∂	0.0517[a]	0.0490[a]	0.0499[a]	0.0517[a]	0.0646[a]	0.0926[a]	0.0734[a]	0.0752[a]	0.0768[a]
	(0.0074)	(0.0042)	(0.0039)	(0.0074)	(0.0120)	(0.0203)	(0.0053)	(0.0053)	(0.0054)
ℓ	0.7111[a]	0.8887[a]	0.9225[a]	0.7111[a]	0.6744[a]	0.6938[a]	0.8320[a]	0.8591[a]	0.8560[a]
	(0.0367)	(0.0188)	(0.0103)	(0.0367)	(0.0431)	(0.0524)	(0.0176)	(0.0134)	(0.0136)
ϕ	0.0103[a]	0.4503[a]	0.4813[a]	0.0103[a]	0.4263[a]	14.53[a]	-0.0154[a]	-0.0213[a]	-0.0096[a]
	(0.0003)	(0.1456)	(0.1798)	(0.0003)	(0.0176)	(2.0438)	(0.0008)	(0.0026)	(0.0011)
w	21.113[a]	4.8998[a]	4.6329[a]	21.113[a]	1.9579[a]	4.1287[a]	1.1829[a]	5.067[a]	5.1797[a]
	(4.0812)	(0.4233)	(0.3394)	(4.0812)	(0.0480)	(0.1268)	(0.070)	(1.2872)	(1.3043)
m	1.5096e-05[a]	0.0030[a]	0.0028[a]	1.5096e-05[a]	0.0021[a]	0.0971[a]	6.0223e-05[a]	-9.0222e-05[a]	-3.7671e-05[a]
	(1.0652e-06)	(0.001)	(0.0011)	(1.0652e-06)	(8.625e-05)	(0.0137)	(1.6057e-06)	(1.4919e-05)	(8.1067e-06)
Panel C: Post-GFC sample period									
	France			Germany			United Kingdom		

	RV-based GARCH	France_MPU_migration	France_fear_migration	RV-based GARCH	Germany_MPU_migration	Germany_fear_migration	RV-based GARCH	UK_MPU_migration	UK_fear_migration
μ	-7.1879e-05	-6.4106e-05	-6.3501e-05	-7.7653e-05	-7.6775e-05	-7.3671e-05	-7.3429e-05	-5.3177e-05	-4.8314e-05
	(7.0863e-05)	(7.0477e-05)	(7.0413e-05)	(5.9825e-05)	(5.6746e-05)	(5.9436e-05)	(6.3773e-05)	(6.3386e-05)	(6.326e-05)
∂	0.0212[a]	0.0199[a]	0.0204[a]	0.0294[a]	0.0226[a]	0.0275[a]	0.0706[a]	0.0614[a]	0.0617[a]
	(0.0026)	(0.0021)	(0.0022)	(0.0027)	(0.0017)	(0.0022)	(0.0033)	(0.0026)	(0.0027)
ℓ	0.9705[a]	0.9765[a]	0.9757[a]	0.9621[a]	0.9762[a]	0.9672[a]	0.8800[a]	0.9033[a]	0.9063[a]
	(0.0086)	(0.0024)	(0.0025)	(0.0065)	(0.0018)	(0.0025)	(0.0105)	(0.0068)	(0.0066)
ϕ	0.0109[a]	0.0073[a]	0.0138[b]	0.0082[a]	-0.0056[a]	0.0033[b]	0.0087[a]	-0.0038[a]	-0.0040[a]
	(0.0021)	(0.0022)	(0.0054)	(0.0027)	(0.0011)	(0.0014)	(0.001)	(0.0004)	(0.0004)
w	6.6267	6.3667[b]	5.7062[a]	5.65	1.0056[a]	9.1317	14.897[a]	1.0821[a]	1.0933[a]
	(6.1251)	(2.5438)	(1.5155)	(5.1029)	(0.0480)	(8.1488)	(4.1149)	(0.0594)	(0.0720)
m	4.0964e-06[c]	-1.6698e-05[c]	-3.9653e-05[c]	9.1184e-06[b]	5.0714e-05[a]	5.7446e-06	1.0786e-05[a]	5.1779e-05[a]	6.1307e-05a
	(2.3944e-06)	(1.0111e-05)	(2.1759e-05)	(3.9813e-06)	(9.3021e-06)	(5.521e-06)	(1.3311e-06)	(3.2118e-06)	(4.245e-06)

Note: The values contained in each of the cells are the estimated GARCH-MIDAS parameters with their corresponding standard errors reported in parentheses. The alphabets a, b and c written against each estimate indicate the statistical significance at 1 per cent, 5 per cent and 10 per cent levels, respectively. The conventional GARCH-MIDAS model that includes realized volatility (RV) is considered as the benchmark and each pane corresponds to the model variation augmented with the predictor variable listed in the first column. In other words, the RV-based GARCH is the realized volatility-based model, which also our benchmark model. Fear_migration and MPU_migration on the other hand, indicate our migration fear-based and the MPU augmented models, respectively for each of our sample countries.

5. Conclusion

Since the middle of the 20th century, international migration has been a frequent occurrence in almost all industrialized countries, and it has considerably impacted the global labour market (Gao, 2015). Given the plausibility of intense migration exerting pressure on a destination country's currency demand thereby heightening its volatility, in this study, therefore, we investigate the response of exchange rate to the rising migratory anxiety. To achieve the study objective, we explore the information content of the Migration Fear index by Baker et al. (2016) which is subsequently augmented with Migration Policy Uncertainty, for the predictability of exchange rate volatility of euro and GBP using France, Germany, and the United Kingdom as our sample countries. The study adopts the GARCH-MIDAS technique of Engle et al. (2013) to sustain the originality of our data which appear in different frequencies. Essentially, the data on migration fear are available in quarterly frequency while those of exchange rates are daily. While the traditional GARCH-MIDAS model that incorporates realized volatility (RV) of the exchange rate is used as our benchmark model, we compute the models that account for migration fear/uncertainty in examining the nexus. It is important to note that the objective of this study is on the latter, as our analyses are conducted for different sample periods including pre- and post-GFC periods. These are in addition to the analysis rendered for the full sample period.

We find evidence that our migration fears proxies accurately predict the exchange rate volatility of euro and GBP given the statistical significance of our slope coefficients. Similarly, given the positive influence of fear associated with migration on France and Germany, we conclude that migration anxiety causes the euro to depreciate relative to USD. On the contrary, we find evidence of a negative relationship between migration fear and the Great Britain Pounds particularly across pre- and post-GFC era, indicating an appreciation of pounds relative to the US dollar. Furthermore, given the closeness of the sum of our ARCH and GARCH coefficients to unity across all sample periods, indicating high volatility persistence, our results suggest migration-related shock to exchange rate markets of France, Germany, and the UK tends to be long-lasting. Our findings have implications for monetary policy-makers saddled with the responsibility of exchange rate management.

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