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TIME-VARYING CURRENCY EXPOSURE OF NON-FINANCIAL FIRMS IN MALAYSIA: COMPARISON BETWEEN THREE SIGNIFICANT FINANCIAL PERIODS

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Abstract: *This paper examines the level of currency exposure of selected non-financial firms in Malaysia. The sample period shall include three noteworthy financial periods namely the Asian financial crisis (AFC) in 1997, global financial crisis (GFC) in 2008, and post-COVID period in 2023. The analysis will employ daily data that are to be collected from both the Bloomberg and Datastream databases. Once collected, the data will be analysed using the OLS method with incorporation of dummy variable to denote the different financial periods. The study is believed to show significant exposure level during the AFC in comparison to the GFC due to the nature of the crisis. However, the post-COVID period remains as a very interesting timeframe as it carries a more widespread crisis effect. This also serves as the novelty of the study as incorporating the post-COVID period provides a fresh outlook in term of side-by-side comparison between three consecutive major financial events for the past three decades. Curating such comparison also merits as a fascinating research due to the staggering differences between the three financial periods. The detailed analysis will enable articulation of more accurate policy making and risk management among the involved parties, particularly in Malaysian market.*

Keywords: Currency exposure, time-varying exposure, financial crisis, non-financial firms, exchange rate exposure.

1. Introduction

Global multinational corporations have been exposed to exchange rate movements risks ever since the collapse of Bretton Woods system in 1970s. The event also marked the start of numerous studies to systematically measure the level of currency exposure effect Suhaimi et al. (2019). Currency exposure coins three key strategies of firms including the decisions to engage in financial hedging, adjust capacity utilization as a means of operational hedging, and increase hurdle rates in capital budgeting (Bergbrant et al., 2024). These risk mitigating frameworks are more prominent in developed market due to the advancement of the market itself. Hence, small exposure effect is often recorded in developed country (Jorion, 1990).

Naturally, currency exposure in developing markets is relatively more volatile and higher as inflicted by lesser involvement with hedging practice. Preliminary analysis by Suhaimi et al. (2019) on 207 Malaysian sample firms showed that only 11 firms (5.31%) hedge

foreign currency exposure using derivatives in 1995, while 196 firms (94.69%) firms are unhedged. The composition of hedge and unhedged firms remain the same even during the Asian financial crisis (AFC). The number of hedged firms rises to 67 (32.37%), while majority of the firms (140 firms, 67.63%) remain unhedged.

Malaysia as a small and open economy is heavily involved with the global economy accompanied by excellent financial development due to its friendly market and liberal foreign policies (Muniandy & Uning, 2006). On another front, Malaysia was hit by two financial crises; the currency attack during the AFC (July 1997-June 1998) and GFC (September 2008 – March 2009) (Muniandy & Uning, 2006). During the AFC, currency exposure was exceptionally high particularly in Asia which led to severe devaluations of currencies such as the Thai baht, Indonesian rupiah, and Malaysian ringgit. The GFC presented a more globally distributed form of currency exposure. What initially started as a banking and credit crisis finally resulted in significant fluctuations in global exchange rates as investors sought safety in assets like the U.S. dollar.

Another critical financial period is the COVID-19 phase (December 2019 – May 2022). The period saw the whole world was hampered with social restriction which put almost virtually all activities on hold – including economics and financial activities. Coupled with these periodical events in the country, the study of time-varying currency exposure in Malaysia proves as an ideal gateway to better apprehend the real dynamics of the exposure in the volatile markets and the extend of economically meaningful effect of exchange rate exposure in the developing countries. The importance of incorporating economic condition was echoed by Gunay (2021) who stood with the proposition that measurement of currency exposure must take into consideration other corresponding risk parameters such as political risk and economic risk.

Hence, this study attempts to incorporate three financial periods in Malaysia in order to identify any sublime trends among all the financial periods under study. This paper contributes to the existing literature in a way in its vast periodical controls, as well as providing a side-by-side comparison of how different financial crises hit the Malaysian market. With this, the market especially the investors and policy makers could make necessary precaution to mitigate the potential effects of the upcoming crisis given the current economic condition – a precautionary condition that we would like to term as financial vaccination.

2. Literature Review

Empirical attempts to measure a relation between exchange rate changes and firm values have been modestly successful. The firms' exchange rate exposure was initially measured by regressing stock returns against exchange rate changes (Adler & Dumas, 1984). Low currency exposure level has been recorded in emerging markets (Allayannis & Ofek, 2001; Bartram et al., 2013), attributable to the extensive hedging in line with the theories of corporate hedging which proposes lower currency exposure in market with lower imperfection and uncertainties (Allayannis & Ofek, 2001). In contrast, developing markets often recorded high exposure level. Hence, assessing the currency exposure in developing markets was crucial considering the higher currency exposure level in the countries due to the markets' high degree of openness in capital and goods markets (Parsley & Popper, 2006). Simultaneously, developing markets were also characterised with high uncertainty, less aggressive hedging activities, and active involvement in foreign operation with high currency exposure (Clark & Mefteh, 2008).

Bacha et al. (2013) found 71% of the listed Malaysian firms had significant currency exposure, indicating higher currency exposure compared to developed countries. The

contradicting results between these two country groups justified Bartram and Bodnar's (2012) argument of economic content in currency exposure. The currency movement would not affect the stock return if it did not contain the economic information. In consideration of the currency shocks and negative impacts on Asian emerging economies and stock markets over the past few years, study on foreign exchange exposure on the region is of crucial importance.

Apart from hedging practice efficiency, low currency exposure also arises from the nonlinearity in measurement from imposing fixed coefficient over long periods. Changes of expected returns due to time variation will cause structural change in the symmetry and investment structure of the firms (Ameer, 2010; Glen & Jorion, 1993).

On a more recent development, Bernoth and Herwartz (2021) highlighted the need to incorporate the domestic and international factors in the measurement of currency exposure. The robust integration of currency exchange market around the world puts extra pressure on the commingling effects of these market factors towards the solvency of the currencies. While some of these risk factors are relatively easy to measure and predict, others can be hard to foresee and hedge. One example is the financial contagion as seen during the AFC and GFC. The contagion effect is very influential towards a financial institution's health and the financial system, but it is also highly unpredictable (Gunay, 2021). Recently, global markets have been exposed to another version of the contagion phenomenon: the novel COVID-19. Observation by Hanif et al. (2023) shows how most currencies experienced a continuous depreciation tendency during the pandemic period which was prompted by various quantitative easing campaigns following the COVID-19 crisis. The response of the global economy and financial indexes towards the aftermath of the period has been rapid and harsh that it represents another important crisis period to study (Gunay, 2021).

3. Methodology

3.1 Sample Description

Monthly data on stock returns, currency exchange (MYR/USD) and market index are collected from Bloomberg for a sample of 207 Malaysian non-financial firms from 1995 to 2016. Financial firms are excluded because they are not directly involved with export-import activities (Allayannis & Ofek, 2001). Most of them are also market makers in foreign currency market with different currency exposure. KLCI index is used to represent the market index. The index enables the regression to exclude any influences that are correlated with KLCI index.

3.2 Research Methods

The study conducts a panel analysis to access the overall period time-varying exposure. The time-varying currency exposure is analysed using the Ordinary Least Square regression model. Both analyses take into account the symmetric and asymmetric movements of the currency exposure.

For the time-varying symmetric model, the study introduces the time dummy variable into the model;

$$R_{it} = y_{oi} + y_1 R_{mt} + \sum S_{US\$} D_j + \mu_{it} \quad (1)$$

For each firm i at time t,

R_t = monthly stock returns of firm i measured as $R_t = \ln(\frac{P_t}{P_{t-1}})$, R_{mt} = monthly returns on the index measured as $R_{mt} = \ln(\frac{R_{mt}}{R_{mt-1}})$, $S_{US\$t}$ = nominal monthly change in the USD exchange rates measured as $S_{US\$t} = \ln(\frac{S_t}{S_{t-1}})$, D_j = time variation dummy for specific time period, and μ_{it}= regression residual.

The time dummy variable D_j denotes the following time-frame, where D_0 = 1 for control period, 0 otherwise, D_1 = 1 for mid Asian Financial Crisis (July 1997-June 1998), 0 otherwise; D_2 =1 for mid Global Financial Crisis (September 2008 – March 2009), 0 otherwise; and D_3 = 1 for COVID-19 period (December 2019 – May 2022) and 0 otherwise.

As this study deals with financial time series with non-constant variance, the study follows the precaution by Dewenter et al. (2005) to add a Generalised Autoregressive Conditional Heteroscedasticity (GARCH (1,1)) specification into equation (1). The study also employed Wald test in order to detect any multicollinearity issue in the exchange rate data. In attempt to better investigate the effect of the exposure, the industrial backgrounds of these significant firms are observed for both symmetric and asymmetric exposure under all periods. These firms are from the utilities, consumer, industrial, communication, energy, diversified, basic material and technology industries.

4. Expected Outcome

A currency exposure analysis unveils the impact of exchange rate fluctuations towards a company's financial performance. With the incorporation of the three different financial crises, we attempt to delve into the varying effects stemming from different nature of the crises. With this, the analysis can help to predict how the market as a whole reacts to any economic meltdown based on the source or nature of the crises. As such, proactive measures could be undertaken to mitigate the exposure and risks.

Following the previous study by Suhaimi et al. (2019) which compared the currency exposure levels during the AFC and GFC, currency exposure during AFC has been shown to be more prevalent compared to GFC. It could be attributed to the fact that the effect of AFC was largely concentrated on the currency market, in addition to the locality of the crisis. On the other hand, effects of the GFC were more subtle towards Malaysia as the crisis was more effective on the US market. However, post-COVID period is somewhat fresh and interesting because it affected the whole world. No country escaped the COVID restriction phase in 2020 and resulted to bumpy global economy recovery. In post-COVID-19, the currency exposure was initially prevalent as the pandemic led to sharp disruptions in global markets, supply chains, and economic activities. The US dollar surged during the early stages of the pandemic, likewise to the flight to safety circumstance observed in 2008. Governments and central banks around the world anxiously took unprecedented and swift actions to stabilize the economy, including large-scale monetary easing, fiscal stimulus, and low interest rates. Hence, the analysis is expected to provide evidence of significant currency exposure post COVID-19 period, but the magnitude would be lower than those in AFC and GFC given the unique nature of its underlying factors and the pre-emptive actions taken by central banks and the global financial system’s resilience.

5. Conclusion

Currency exposure represents a critical financial risk for businesses, investors, and economies operating in the increasingly interconnected global marketplace. Managing this risk effectively requires a clear understanding of how exchange rate fluctuations can affect the value of assets, liabilities, and cash flows, as well as the performance of investment portfolios. Comparing currency exposure across the AFC (1997), GFC (2008), and the post-COVID-19 period is believed to reveal distinct patterns driven by the underlying causes and global economic conditions. AFC was prompted by over dependency on debt and financial mismanagement with speculative attacks on the Asian currencies accelerated the effects of the crisis. Still, the currency exposure was concentrated in Asia with relatively smaller consequences far-reached the other emerging markets. In contrast, the GFC presented a more globally distributed form of currency exposure as emerging markets faced particularly high currency exposure as capital outflows and falling commodity prices added pressure to these economies.

Thus, while the AFC witnessed acute and concentrated currency exposure, and the GFC saw global volatility, the post-COVID period exhibited relatively lower long-term currency exposure. The rapid policy responses and improved risk management practices during the period are believed to mitigate the exposure level, which helped contain the effects of currency volatility more effectively than in earlier crises. However, too much coordinated responses to the pandemic could also distort market equilibrium rates in currency markets, when the impact of nationalism- and protectionism-oriented actions taken by governments is considered. All in all, the analysis shall equip the involved parties especially the firms to understand the nature of each crisis period and make informed decision when facing any form of financial crisis.

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