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Operating Mechanism of Cross-border Capital Flows, Logic of International Asset Allocation and Practical Path of Financial Derivatives

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Abstract: Accelerated globalisation of finance has brought closer the worlds cross -border capital flows, international asset allocation and financial derivatives in a large-scale system. Systematically explore the operating mechanism of cross-border capital flows and the underlying logic for international asset allocation in this paper, and finally conduct an analysis of the application of financial derivatives. Theoretically, this paper investigates the push-pull mechanism driving global capital flows and examines how the global financial cycle challenges the traditional Mundell-Fleming Impossible Trinity. In terms of asset allocation, the study analyzes the reasons for international portfolio diversification and contrasts the theoretical mean-variance optimization approach with the empirical phenomenon of home bias. To connect theory with practice, research is also conduct ed on how multinational corporations and institutional investors use foreign-currency derivatives and interest-rate swaps to hedge against systemic exchange-rate and credit risks in cross-border investments. Based on the above research, although the objective of expanding overseas is to improve risk-adjusted returns, given the volatility of the global financial cycle, derivatives must be used carefully and dynamically to ensure the safety of funds and stability of assets.

Keywords: Cross-border Capital Flows; Asset Allocation; Financial Derivatives; Global Financial Cycle; Hedging; Home Bias.

1. Introduction

The worlds economy is integrated to some extent now, and money moves in and out of different regions very often; this will affect them all. With the opening of the capital account and continuous progress in financial technology, some barriers to cross-border investment have been reduced to a certain extent. Therefore, all countries and companies around the world have been subject to a series of exchange rate fluctuations, changes in monetary policies and geopolitical risks.

A full-featured structure of the worlds financial system needs to be learned. Generally speaking, one needs to be able to pinpoint the reasons for cross-border capital flow; that is, why have significant sums of funds suddenly been directed to particular emerging economies only to be withdrawn rapidly during times of global crisis? At the microeconomic level of portfolios, one should consider why money is being invested abroad and how best to spread this money across different regions overseas to achieve a good risk-adjusted return.

There is now a demand for all-round knowledge that is higher than before 2008 in a post-2008 financial environment. After the financial crisis around the world, the major central banks released an unprecedented amount of funds in their quantitative easing measures, and the volume and speed of cross-border capital flow in the system changed significantly. A large influx of low-cost funds has reduced the risk premium and promoted an expansion in international investment in high-yield, non-standard emerging market debt. However, given the tightening of monetary policy in the near future, capital flow will change and a systemic risk will thus emerge. Now that we have learned how these systems work in recent years, it is absolutely necessary to know. If there is no connection between the cycle of global liquidity and the domestic asset market, then both the government and private investors will be subject to risks from everywhere.

The theoretical model of capital allocation does not have practical risk control mechanisms. When capital is moved abroad, there will be large amounts of foreign-currency and interest-rate risks. A smaller number of risk investments in finance is to be chosen. They offer investors instruments for hedging the risks of fluctuation in the global economy.

This paper will systematically investigate how cross-border capital flows work, why foreign-asset allocation occurs, and what kind of finance derivatives can be used. Based on the above introduction, Section 2 will study the theoretical push-pull mechanisms and the changes in the monetary trilemma for capital flows. Section 3 explores the basic reasons for global asset allocation and addresses the continuous problem of home bias. Section 4 applies this theory to practice and investigates how financial derivatives are employed to hedge cross-border exposure. Finally, Section 5 presents the main results and discusses the combination of macro-mechanisms and micro-hedging in a concluding remark.

2. Operating Mechanisms of Cross-border Capital Flows

The traditional push and pull theory for explaining how cross-border capital flows work is given by [4]. Push factors are external reasons stemming from changes in the worlds economy, such as changes in the monetary policies of other countries (e.g., a rise in the US Federal Reserve). Federal Reserve and the current state of global risk aversion. When the world has a low-interest-rate environment and a high-risk attitude, funds will likely flow out of developed economies to pursue higher yields elsewhere. On the other hand, pull factors are endogenous characteristics of a country, such as high growth in domestic GDP, good institutions, and deep capital markets; these will actively draw in foreign investment

to a particular sovereign region.

Recently, some domestic economic studies have introduced the idea of a Global Financial Cycle in this field [5]. Based on empirical evidence, all countries, irrespective of their exchange rate systems, have shown some level of substantial cross-border capital flow and linked global asset prices. Economic fluctuations in the United States and other countries have spread around the world, as well as a drop in investor confidence (shown by the VIX index). In recent years, many new-era economies have experienced large-scale capital outflows and sudden stops in funding despite relatively stable domestic conditions during the era of global financial tightening.

This problem has serious consequences for the traditional Mundell-Fleming "Impossible Trinity" (or Trilemma), which indicates that it is not possible for a country to maintain both monetary policy autonomy and a fixed exchange rate simultaneously in the era of free capital flow [10]. With the widespread impact of the Global Financial Cycle, the trilemma has effectively become a "dilemma", as independent monetary policy is only feasible when the capital account is directly or indirectly regulated [5]. With the free movement of capital today, an unstable exchange rate will no longer be able to protect our economy from the impact of a financial crisis abroad, and therefore, strong macroprudential regulation is required.

As a result, the policy space available for all-weather-use countries has been reduced. When the central bank of an emerging market raises interest rates to control high inflation in that country, a large number of speculative foreign funds will also be drawn out due to the higher interest rates. A sudden increase in imports will strengthen the domestic currency, reduce the competitiveness of exports, rapidly expand the domestic credit channel, and thus worsen the inflation problem the central bank wishes to address. The United States The US Federal Reserve has tightened monetary policy; thus, capital has fled and emerging market central banks have been forced to raise interest rates rapidly to defend their currencies, frequently causing deep recessions in their own economies. In light of the above analysis, some countries have started to apply Capital Flow Management (CFM) and other macroprudential policies to break this vicious circle [8]. Use tools such as non-remunerated reserve requirements for foreign inflows or strict limits on foreign-currency borrowing by domestic banks to introduce friction in the capital account. The purpose of the above regulatory reforms is not to reduce financial globalisation, but to decrease the fluctuation of cross-border funds and establish a more stable operating platform for the domestic economy in an uncertain period of the global financial system.

At a deeper level of theory, cross-border capital flows can be regarded as the result of continuous repricing of risk, liquidity and expected return in different areas. Capital will not flow to a country simply because that country has a high nominal interest rate; rather, after accounting for the risk of exchange rate fluctuation, political instability, lack of liquidity and regulatory policies, investors must be convinced that it can offer better returns than other places. Therefore, the operating mechanism of capital flows is in fact a system of relative valuation. The state of global liquidity will determine how much money abroad can be borrowed, and the strength of the economy at home needs to be good enough to use that money for stable investments instead of short-term finance. Thus, the same interest rate difference may draw stable long-term capital to one country but only speculative and short-term capital to the other. For the reason that these institutions are not very popular, the local financial market has been undeveloped, and the economic system is weak.

3. Logic and Frictions of International Asset Allocation

Given the current macro-economic conditions, the basis of international asset allocation is still modern portfolio theory. The main reason for overseas investment is to spread out risks. Sovereign economies have different business cycles and industrial structures, so their domestic equity and bond markets are not closely linked [7]. By constructing a portfolio in several foreign countries, the risks of specific to these countries and individual companies are significantly reduced; thus, an outward shift of the efficient frontier and an improvement in risk-adjusted returns over those in a domestic portfolio can be achieved [3].

Overseas allocation can help investors find a relatively low-cost country with a lower yield. A typical allocation strategy is the "carry trade", which involves borrowing funds in a low-interest-rate country and investing them in a high-interest-rate country to earn the difference in interest rates [9]. Although uncovered interest rate parity theoretically predicts that a currency devaluation should compensate for this increase in carry trade profits, empirical evidence shows that carry trade generates continuous abnormal returns and prompts a large-scale cross-border flow of speculative funds.

Theoretically, however, the concept of international diversification shows a gap with reality due to what is known as the "home-country bias". Although the advantages of global investment are clear in theory, most people still invest a large proportion of their money in their own countrys stocks. The reasons for this contradiction are: higher costs of information asymmetry, concealed transaction fees, and the behavioral comfort people feel investing in well-known domestic brands. Home bias is a reasonable response to the unhedged risks of foreign investment, and that is also true. When a portfolio is outside of a country, there will be risks such as political instability, differing inflation rates and foreign exchange fluctuation, and thus these will be hard to address; otherwise, the effects of diversification will be eliminated.

To solve the problem of home bias and implement an all-country allocation plan, we need to distinguish between the beta exposure and the alpha creation systematically in a global context. Passive international allocation merely buys a global equity index and offers only basic geographic beta, and is often unable to achieve optimal diversification during times of systemic global crises. In the event of a severe global market crisis, such as the 2020 pandemic-related liquidity shock, all international stock markets have begun to move together; thus, global diversification does not offer much insulation in such an emergency. Therefore, the advanced international asset allocation model is a dynamic conditional optimisation model. These high-end models do not assume fixed correlations; instead, they continuously change the weights of different assets based on the latest macroeconomic data to quickly reallocate capital among various classes of assets, such as developed market government bonds, emerging market stocks, and global commodities, and respond to the fluctuations in the world economy. Actively and dynamically build an overseas diversified asset base that

has genuinely low-correlation risk factors, rather than just purchasing foreign assets.

At a deeper level of theory, the purpose of going overseas for asset allocation is not just to select a place outside of ones own country, but rather to find the genuine sources of risk in the returns from these assets. A portfolio may be internationally diversified due to securities from various markets, but it is still highly concentrated in the same global liquidity cycle, dollar funding condition, or commodity price shock. Thus, the initial premise of globalisation allocation is factor diversification, rather than country diversification. Determine whether the foreign assets are an independent source of returns or simply risk replication of the existing domestic portfolio. All of these are indirect transmission channels that affect the performance of overseas assets: fluctuations in the exchange rate, inflation expectations, changes in the credit conditions of governments, different monetary policies, political risks, etc. Therefore, good asset allocation should continuously consider how to maximise expected returns and adjust the risk-adjusted return. Only when all of the above factors are taken into account can the ideal of international diversification be realised in practice as a stable and viable investment plan.

4. Practical Path of Financial Derivatives in Risk Hedging

Given the above, although international diversification is required according to theory, it is practically risky to focus only on one market, so financial derivatives have been employed in practice. Derivatives, such as forwards, futures, options and swaps, can be used for financial speculation and also for risk hedging in the construction of the current cross-border capital flow system [6].

A typical case is a foreign-owned company or an overseas-listed fund that is subject to exchange rate changes. When a U.S. fund manager invests in Japanese stocks, the total return will be affected by both the rise and fall of the Tokyo Stock Exchange and changes in the JPY/USD exchange rate. Therefore, the company will use a foreign-currency derivative to hedge this risk. Based on the results of empirical studies, judiciously employ currency forwards and options to reduce cash flow fluctuations for foreign-invested enterprises and meet the requirements of optimal corporate hedging theory [2]. A forward contract is used to fix the exchange rate in advance, and thus the value of the asset will not change due to fluctuations in the foreign exchange market.

In addition to currency risk, cross-border capital allocation also needs to deal with different sovereign yield curves and is often done through interest rate swaps (IRS) and cross-currency swaps (CCS). A corporation in a developing country raises funds by issuing dollar-denominated debt at a relatively low cost, but if the local currency depreciates, it will be unable to pay off the debt. Through a cross-currency swap, the company has converted its dollar-denominated debt into a domestic-currency debt and thus hedged both interest-rate and foreign-exchange risks for an extended period. The above application can help to promote the smooth flow of global debt capital by allowing entities to borrow in highly liquid overseas markets and repay in their home-country operating currency.

The derivative products mentioned above are generally traded in the Over-The-Counter (OTC) market to offer customised risk management services in practice. Unlike standardised exchange-traded futures, over-the-counter (OTC) derivatives can be customised to match the specific maturity dates, currency pairs and notional amounts of a particular cross-border transaction precisely. For example, if a foreign company needs to receive a certain amount of dividends from its European branch exactly 18 months later, it can enter into an off-the-run-of-the-books forward contract for that amount at a specific time. However, these powerful derivative products also have a problem of a secondary risk: counterparty credit risk. To reduce the risk of non-payment by a financial counterparty on a derivative contract, the international financial system has strengthened the legal system for the ISDA Master Agreement and increased collateral-margin requirements for trades. The Prices of these derivatives also require high-level quantitative analysis. Derivative traders need to monitor the Black-Scholes implied volatility surface and interest-rate term structure at all times, as well as credit default swap spreads, and ensure that the cost of hedging does not exceed the expected risk-adjusted return of the underlying foreign asset. Therefore, in practice, the application of financial derivatives requires all-weather observation of the macro-market, strict legal provisions and high-end quantitative financial engineering.

5. Conclusion

A network of cross-border capital flows, international asset allocation, and financial derivatives has become the main nerve centre of the worlds financial system. As shown by the above theoretical and empirical research, the flow of world capital is not random but is rather the result of a system-wide push-pull force and the immense pull of the global financial cycle. Due to the above macroeconomic reasons, the traditional Mundell-Fleming trilemma is facing adjustments and domestic markets are more susceptible to fluctuations in foreign capital.

Given the above macro-economic changes, the rationale for international asset allocation seeks to utilise the imperfect global correlation of assets to enhance portfolio efficiency. However, there has been a long-standing empirical anomaly of home bias: without resolving the significant friction in cross-border risk, theoretical diversification will not take place. Financial derivatives can be used to turn theoretical construction of a portfolio into actual capital deployment.

Financial derivatives have provided support for the worlds capital in recent years. Multinational enterprises and foreign investors can use derivatives such as forwards, options and swaps to offload and manage their currency and interest-rate risks precisely, thereby ensuring that capital flows freely to where it can be utilized most productively around the world. For everyone in the face of the fluctuations of global finances today, a strong grasp of the relationships among the broad links in the macro-level capital cycle and the details of individual derivative hedging is absolutely required.

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