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Международна научно-практическа конференция

90 години дарителство, знание, иновации и устойчиво развитие в СА „Д. А. Ценов" – Свищов

Том II



5-7 ноември 2026 г.

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Гл. ас. д-р Димитър Костов[1]

Резюме: *От историческа гледна точка могат да се отбележат няколко ключови събития, довели до появата и развитието на феномена валутен риск. Сред тях са: (1) преходът от Бретънуудксата системата на фиксирани курсове към по-късната система на плаващи курсове, съгласно Кингстънските споразумения от 70-те години; (2) процесът на глобализация, който е свързан с отварянето на икономиките; (3) създаването на Еврозоната (1999-2000), която от една страна би трябвало да намали общата волатилност чрез намаляване на общия брой валути, но от друга да разшири влиянието на Европа чрез по-високата позиция на новата валута; (4) Глобалната финансова криза (2008-2010) и някои по-ранни и по-късни кризи, като Мексиканската и Азиатската кризи. Всичко това сочи към актуалността на един преглед на научната литература по темата. Основните резултати сочат, че има дискусии около обхвата на понятието „валутен риск“, че той засяга не само международните компании, че основните валутни кризи са предизвикани от преминаване от фиксирани към плаващи режими и че управлението на валутните експозиции се свързва с три подхода – финансово хеджиране, операционно хеджиране, прехвърляне.*

Ключови думи: *Експозиция към валута, валутен риск, международна среда, измерване и управление на риска*

JEL: F31, F33, F65

FOREIGN EXCHANGE EXPOSURE AND RISK MANAGEMENT APPROACHES: A STUDY OF RESEARCH LITERATURE

Head assist. prof. Dimitar Kostov, PhD

Abstract: *From a historical point of view, several key events may be noted that led to the emergence and development of the phenomenon of foreign exchange risk. Among these are: (1) the transition from the Breton-Woods system of fixed exchange rates to the later system of floating rates under the 1970s Kingston accords; (2) the related process of globalization, which is associated with the opening of economies; (3) The creation of the Euro area (1999-2000) which on one hand should have reduced overall volatility by reducing overall number of currencies, but on the other extended the influence of Europe through the higher position of the new currency; (4) the Global financial crisis (2008-2010) and some earlier and later crises like the Mexican and Asian crises. All this points to the relevance of a review of the scientific literature on the topic. The main results show that there is a discussion around the scope of the*

[1] d.kostov@uni-svishtov.bg, „D. A. Tsenov“ Academy of Economics, Bulgaria, Department of International Economic Relations

concept of „foreign exchange risk", that it affects not only international companies, that major currency crises are caused by the transition from fixed to floating regimes, and that the management of foreign exchange exposures is associated with three approaches – financial hedging, operational hedging, pass-through strategies.

Keywords: *Foreign exchange exposure, currency risk, international environment, risk measurement and management*

JEL: F31, F33, F65

1. Introduction – theoretical fundament

Ever since the collapse of the Bretton-Woods fixed exchange rate system in 1971 and the establishment of the Kingston accords in 1976, most currencies in the world have floating exchange rates. Probably most will agree that that was the main event that led to the development of the modern-day concept and the field of foreign exchange risk (exposure). Of course, even before that there were controversies about the implications of one or another exchange rate regime. In the period between the two world wars, there were discussions on the pros and cons of abandoning the gold standard. Unlike later arguments, taking primarily the viewpoint of firms, these were more of a state-level considerations. The main critique of the gold standard was that it allowed the translation of depressions from one country to another. Namely if one country was in decline, it would decrease demand for import goods, causing a decrease in corresponding export revenues in exporting countries, which in turn would lead to diminishing ***quantity of money*** and ***income*** in the second country. Not only would it be unable to adjust via the exchange rate but even if it had enough gold reserves to employ countering monetary policy and price stabilization, this would not be sufficient. (Laursen, S., & Metzler, L. A., 1950). So initially, it was thought that floating exchange rates would solve the problem completely. The theory of employment, however, clarified that not only prices and income are affected but also domestic productivity, demand and employment because price change and employment would lead to capital outflow in search of better investment opportunities. Hence, floating exchange rates and corresponding adjustment possibilities would not suffice unless combined with some kind of capital movement controls[2]. Also, the influence of the terms of trade is considered in this theory.

As it undoubtedly quickly became evident in the 1970s the floating rates introduced a new degree of uncertainty which attracted research interest. One of the first aspects of difficulty was how to account for assets and cashflows from abroad in domestic corporations' financial reports. Wihlbord (1980) addresses this accounting issue by adapting earlier works and defining the relative terms in groups – ***transaction*** vs ***translation*** exposure, ***accounting*** vs ***economic*** exposure,

[2] Below when the most prominent currency crises are discussed it will become evident that loosened capital controls were part of the source of the problem.

also ***exchange rate*** exposure, ***inflation*** exposure, ***relative price*** exposure, ***monetary*** vs ***nonmonetary*** assets/liabilities, etc. Transaction exposure is defined as the uncertain domestic value of an open position with respect to a known transaction, i.e. a future ***flow.*** Analogically, translation exposure is the uncertain (future) value of an asset/liability, i.e. a risky future ***stock*** in relation to this future stock's consolidation into the mother company's financial reports. ***Accounting exposure*** is defined as foreign asset minus foreign liabilities, translated at the current exchange rate. ***Economic*** exposure – the change in present value of future assets minus liabilities, adjusted for price changes and discounted with real required rate, that changes due to fluctuations in exchange rate for which reason is described on the basis of the DDM.

Hodder (1982) focuses on clarifying the problem of what exactly is exposure to changes in exchange rates (currency risk), based on the obvious contradiction of opinions in the literature at the time. Authors, at one extreme, argued that every currency-denominated asset or liability represents exposure. Others claimed that in perfect markets there is no „real" exposure and currency risk is a „monetary illusion". Hodder shows that both points of view were flawed – the first one – by ignoring any interlinkages between exchange rates, inflation and prices. The second one – by assuming almost perfect markets. That is why Hodder focused on the relationship between commodity prices and exchange rate fluctuations, pointing out that much of the fluctuations in international competetion and hence in domestic commodity prices are the result of fluctuations in exchange rates. In turn, they form the cash flows of MNCs, but obviously they also affect ***purely „domestic"*** corporations. To put it another way, there is also an inverse relationship between exchange rate fluctuations and domestic inflation, which concerns the real rate of return of firms.

The study of Adler & Dumas (1984) is one of if not the most cited article in the field of exchange rate risk. It clarified several key concepts among which may be the clearest notion of the essence of economic exposure. That is – economic exposure is the type of currency exposure faced by all companies even those that have no international activity – i.e. purely domestic corporations (for ex. electrical utilities). They may have exposure still if their clients have direct transaction or translation exposure, or their main resource price is driven by international prices and foreign exchange rates (like it is for oil for non-dollar countries). Adler & Dumas also make an explicit differentiation between ***risk*** and ***exposure.*** Currency risk is uncertainty, randomness and unexpectedness of exchange rate changes, identified with some probabilistic statistical quantities. The exposure is the quantity that is under the influence of the risk, i.e. the foreign currency amount, sum, that may change. Based on this concept, exposure is measured with the slope coefficient of a linear regression of possible future domestic prices of a foreign-denominated asset regressed on possible exchange rates of the respective foreign currency. The measuring units of the coefficient/exposure thus acquired are foreign currency units. These findings are widely

cited and regarded in subsequent literature. At the same time, we must admit that the literature in question uses the terms exposure and risk in a slightly different manner – almost interchangeably. So, this raises a few questions. Firstly – is the A&D methodology applicable for ***flows*** (as in transaction exposure) and not just assets (***stocks***)? Secondly – which is the source and which is the result? Thirdly – if exposure is the sensitivity of a company's value to FX volatility (as Jorion (1990) later defines it), why is it measured in currency units and not in some percentage terms like usual regression slope coefficients? Based on these questions and definitions in subsequent literature it may be concluded that exposure should rather be considered as the sensitivity to exchange rate movements. If exposure was just the sum this would imply that the higher the nominal sum of the *exposed* cash flow/stock, the higher the risk. But seems like that this is not the case –exposed flows/stocks of the same sum in differently volatile currencies would imply different currency risk incurred. This perception is in line with the definition of Holton (Defining risk, 2004) – that risk requires both uncertainty and exposure. So, we may say for now that currency risk for a company is the sensitivity of its value to exchange rate movements, which involves ***both the nominal amounts exposed AND the volatility or uncertainty*** of the exchange rate. That seems to be the point of view of later work.

Jorion (1990) developed the A&D paradigm further in the direction of measuring entire company sensitivity to exchange rate risk (not just separate cash flows or assets/liabilities). A regression model was built where stock returns were regressed upon weighted currency index as a measure of currency volatility and a market index to control for market risk. This way an important result was obtained – that the exchange rate exposure differed significantly among US corporations and was positively and reliably correlated with the degree of international involvement.

2. Some key events in the field of foreign exchange exposure

2.1 Mexican „tequila" effect and Asian „flu"

Mexico experienced rapid economic transformation in the 80s and early 90s due to structural reforms, inflation stabilization, deficit reduction, etc. Of key importance was the regime of the Mexican peso, which was basically pegged to the US dollar – conditions that induced (over) confidence in foreign investors. A series of adverse economic shocks led to quick reduction in currency reserve capacity to maintain the peg and at the same time to the rise of short-term external debt. The Mexican government devalued the peso in December 1994 and later moved to a free-floating exchanger rate. This worsened the indebtedness problem and led to a series of crisis events, including severe stock market declines not only in Mexico but in Latin America as a whole (undoubtedly due to foreign investors leaving the markets to contain their loss) (Masson, M. P. R., & Agénor, P. R., 1996). Calvo (1996) analyses the events and concludes that the reasons were of

financial and liquidity nature, and not necessarily current account unsustainability and real exchange rate considerations. He compares the Mexican case with Austria's long-term peg to the Deutsche mark and concludes that the characteristics of the Mexican ***banking and financial sector*** were problematic and did not provide appropriate conditions for the chosen ER regime.

A very similar scenario unraveled several years later in South-East Asia. Due to the loosened capital controls in the early 1990s a lot of investments poured in the promising and rapidly developing economies of Thailand, South Korea, Malaysia, Philippines, etc. Again, those economies were maintaining currency pegs to the USD. Again, at one moment governments were forced to spend much of their currency reserves, which led to inability to maintain the exchange rate regime and at the same time led to piling up of a large external short-term debt[3]. Devaluations of currencies followed, leading to problems with debt management and forcing the IMF to intervene (Lissakers, 2001). Probably the „newest" part of those crises was the simultaneous and severe capital market decline undoubtedly triggered by the outflow of foreign investors. They, on the other hand, suffered tremendous losses due to the simultaneous stock price and exchange rate surge. They were misled and overconfident in the determination and ability of local governments to maintain the peg, probably leading to underestimation of the need for exchange rate exposure hedging. Granger et al. (2000) studied these events for causality. The traditional approach of Krugman and Obstfeld (Krugman, P. R., & Obstfeld, M., 1997) states that first lower foreign exchange rates give competitive advantages to companies and branches in that country, attracting foreign capitals, leading later to rise in domestic stock prices. The more modern portfolio approach states that stock prices are first – when they fall in one country under free capital movement, investors seek new opportunities, leading to foreign investments and subsequent exchange rate changes[4]. Granger finds more proof for the latter hypothesis which leads to the next topic.

2.2 Globalization

As Granger (2000) hinted in his research, in the conditions of lowered capital movement controls evidently the flow of investments leads the changes in exchange rates. But in many cases, each influences the other, creating the so-called ***feedback interaction***. On a more theoretical plane globalization is inherently connected to the topic of foreign exchange risk. As mentioned, the very emergence of the modern field of currency risk is related to global regime changes, specifically the collapse of the Bretton-Woods system after. Part of the process was the so-called 1980-90s „Washington consensus model" (Williamson, 2009) under which we can say the modern wave of globalization started. Evidently the relaxing of capital movement controls stemming from this policy lead to more

[3] „double mismatch".
[4] It should be noted that the two hypotheses are not mutually exclusive.

market integration but also changes in the relation between stock markets and currency markets. This had multiple and complex implication on foreign exchange risk management – it increased overall exposure by creating more MNC ventures (Aggarwal, R., & Harper, J. T., 2010), it increased global shocks transmitssion, etc. For example, Ogawa and Luo (Ogawa, E., & Luo, P., 2024) report that global risks promote the appreciation of safe-haven currencies and depreciation of others. But surely it also promoted access to new possibilities for hedging.

2.3 The introduction of the Euro

In a highly regarded article, Bartram and Karolyi (2006) conduct a large study over weekly returns of 3220 nonfinancial firms from the EU, the US and Japan. They find that the launch of the Euro introduced an increase in stock return volatility but significant reductions in ***market*** risk were detected for European and non-European firms (expectedly with high fraction of sales within Europe). Actual explicit reductions in exchange rate exposure were found to be small. However, the authors interpret these results in favor of the Euro, explaining that the FX exposure is part of the total market (non-diversifiable risk) of companies, which means that the detected reduction in market risk in fact captured reduction of FX exposure.

Somewhat contrary results in a slightly different aspect get Elaine Hutson and Anthony O'Driscoll (2010). With a large sample size (1154 firms) they compare eurozone to non-eurozone firms and find that after the introduction of the Euro both were subject to larger ***firm-specific*** foreign exchange exposure. But this effect was larger for non-eurozone companies. At the same time, both groups show reduction in ***market-level*** foreign exchange exposure. This shows a shift of exposure from systematic to non-systematic level. Another interesting detail is that after the introduction of the EUR Eurozone companies experienced a significant increase in overall FX exposure. Maybe that is because they became part of a more internationally involved economic area. This effect however disappears after controlling for firm-specific factors.

2.4 Global financial crisis

Lan, Chen & Chuang (2015) analyse Taiwanese companies in relation to financial crises. They point two important ways in which the Global financial crisis of 2008-2010 differs from the Mexican and Asian crises. First – they had mostly regional effects while the 2008-2010 subprime crisis quickly became global. And secondly – the immediate cause of the subprime crisis was the default on mortgage securities while in the case of the Asian „flu" – the maturity and currency discrepancies between ***short term foreign*** borrowing and ***long term domestic*** denominated investment project and revenues (the so-called „double mismatch" problem). Most important difference in regard to exchange risk is that during the Global financial crisis the exposure was mainly through the ***revenue side***, while during the Asian crisis it came from the ***cost side*** of companies.

Sikarwar (2018) study a sample of Indian companies and find evidence that their FX rate exposure rose during and post-crisis but no evidence that currency derivatives were any more efficient after the crisis.

3. Evidence on foreign exchange risk management

The management of foreign exchange risk has nuances, depending on the entity (MNCs, individual investors, government agency). The point of view of corporate finance (MNCs) can be considered as a baseline (Jacque, 1983). Management of currency risk has three elements – (1) determining the type of foreign exchange exposure (transactional, translational, economic), (2) measuring the magnitude of the exposure (risk), (3) choosing an appropriate management strategy (including deciding whether to manage the risk) and relevant tools with which to implement the chosen strategy (Papaioannou, 2006).

The measuring of the different types of exchange rate risk differs. As mentioned above - transaction risk/exposure is a function of the scale of sum that is denominated in foreign currency and the impact of exchange rate volatility. The sum is the net cash flow, and the impact depends on the volatility of the currency rate. The volatility of a single currency may be measured with the „classical" ***standard deviation*** and the volatility of the portfolio of currencies – with the formula of Markowitz (Madura, 2013). In relation to the standard deviation, according to Papaioannou, one of the most widely used methods is the ***VaR methodology***. More specifically this relates to the variance-covariance method for calculating value at risk. As is well documented, the shortfall of this method is that it assumes jointly normal distribution of currency movements. Also, Papaioannou and Gatzonas (2002) note that under VaR maximum possible loss is not known with 100% probability so companies often set ***operational limits***, such as nominal amounts or ***stop loss orders***, in addition to VaR limits, to reach the maximum possible coverage possible coverage.

In relation to the abovementioned term – operating risk – as part of MNCs economic exposure, some companies choose to employ ***operational hedging*** strategies – that is „the strategic deployment of diversified multinational corporate operations, effectively offsetting foreign sales with costs in the same currency" (Han, X., & Laing, E., 2025) (Hutson, E., & Laing, E., 2014). (Pantzalis, C., Simkins, B. J., & Laux, P. A., 2001). Allayannis et al. (2001) investigated this problem with a sample of American MCN for the period 1996-1998 and concluded that the operational hedging strategies are not an effective substitute for financial hedging. Operational hedging is beneficial only if ***combined*** with financial hedging.

In another very highly cited article Allayannis et al. (2001) demonstrated that the use of derivatives significantly reduced the exchange-rate exposure of firms. They also find that, „despite the decision to use derivatives is a function of exposure factors (foreign sales and foreign trade) and of variables largely associated with theories of optimal hedging (i.e., size and R&D expenditures), the

level of derivatives used depends only on a firm's exposure through foreign sales and trade."

Bae et al. (2018) study the link between ***expected direction*** of exposure and hedging strategy chosen. The direction of exposure is positive if the company benefits from the depreciation of its domestic currency (appreciation of foreign currency) and negative if a company suffers when local currency depreciates. (Dominguez, K. and Tesar, L., 2006). This is expected of export firms. Bae et al. find that typically, companies with positive expected FX exposure use all kinds of hedging strategies - currency derivatives, internal transactions with foreign subsidiaries, and foreign currency debt to reduce exposure, while firms with negative expected exposure use only pass-through strategies, so an importing company will not hedge effectively, but pass the risk to its clients. Also, another problem of measuring FX risk is pointed out when applying theoretical approaches like relating the movements of share value to exchange rate movements. Many times, in this way a much smaller effect is detected than expected. This is the so called ***exposure puzzle*** and according to Bartram, S. M., Brown, G. W., & Minton, B. A. (2010) and Bartram and Bodnar (2007) is due to the fact that stock prices already reflect the effects of the hedging strategies of the companies.

Actual data on the real practices and decision processes of exchange rate measuring and managing may be difficult to come by. As Bae et al. (2018) note „The difficulty of measuring the expected…exposure rests … on the notion that … firm's import ratios are regarded as...trade secrets". That's why some authors use proxies of firm characteristics for research. Authors like Allayannis et al. (2001) obtain data from the footnotes of the reports of firms but it of course reflects actual derivatives used and not the decision process itself. Similarly, for general illustration of trends data from The Bank for International Settlements in Bazel, Switzerland may be used (Alfaro, L., Calani, M., & Varela, L., 2024). In figures 1-3 we can see the general development of FX derivatives market. The obvious general trend shows a massive increase in overall volume of FX instruments over the years (Figure 1). Also, we can see in OTC traded contracts, FX swaps (i.e. short-term) are most widely used, followed by spot deals. Outright forwards and currency swaps show a tendency for increasing at the expense of spot deals. In the exchange-traded segment (Figure 3.) futures are the most used instruments, but options tend to increase their share overall. We can also see several reductions in overall usage of exchange-traded derivatives, like around the year 2008-2010 and again 2019-2021. Perhaps we can relate the first one with the Global financial crisis and the second wone with Covid. Around 2014-2016 we see reduction in both OTC and exchange traded. This is due to dollar appreciation which reduced the value of other currency trades. BIS recognizes this as a change in growth rate but it's mostly due to the spike in 2013 (because heightened activity in Japanese yen). The heightened activity in 2025 is due to new US tariffs.

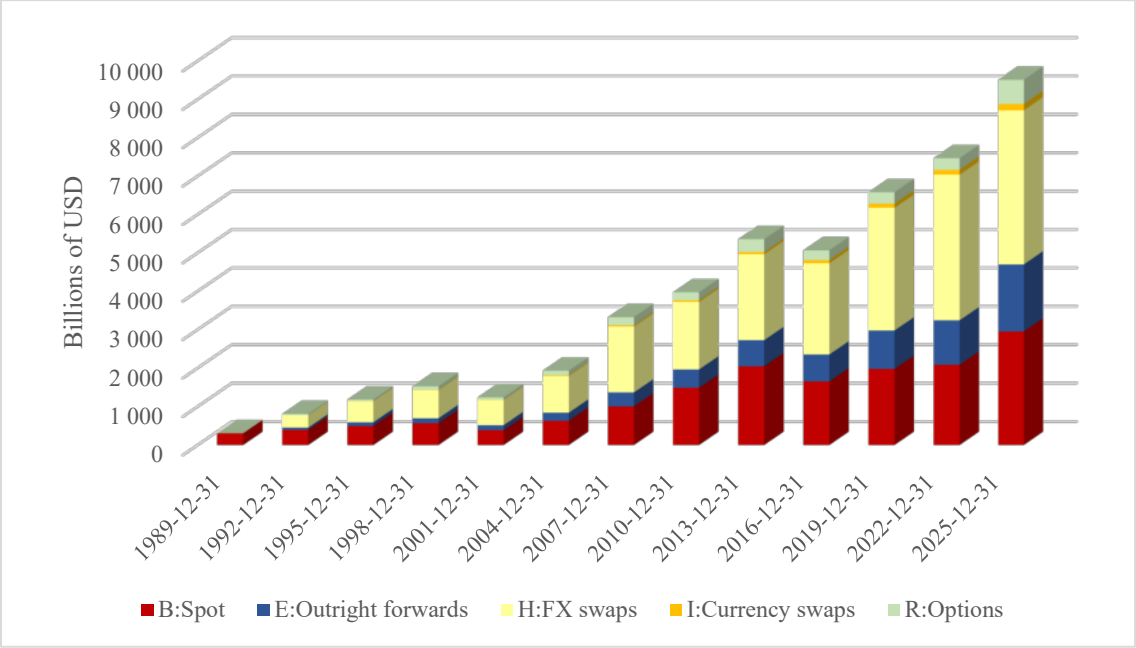


Figure. 1. Global foreign exchange turnover by instrument – OTC, net-on-net basis, all currencies, all exchanges (daily average)

Source: https://data.bis.org/topics/DER

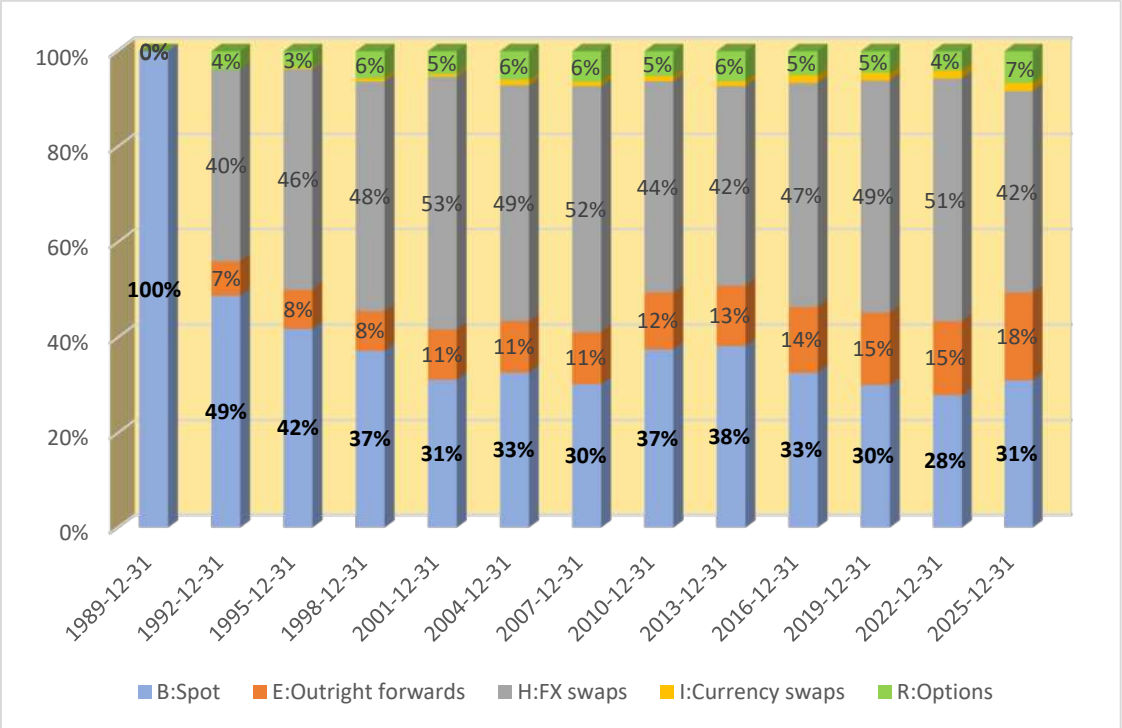


Figure. 2. Global foreign exchange turnover by instrument – percentage share of each instrument in total

Source: https://data.bis.org/topics/DER

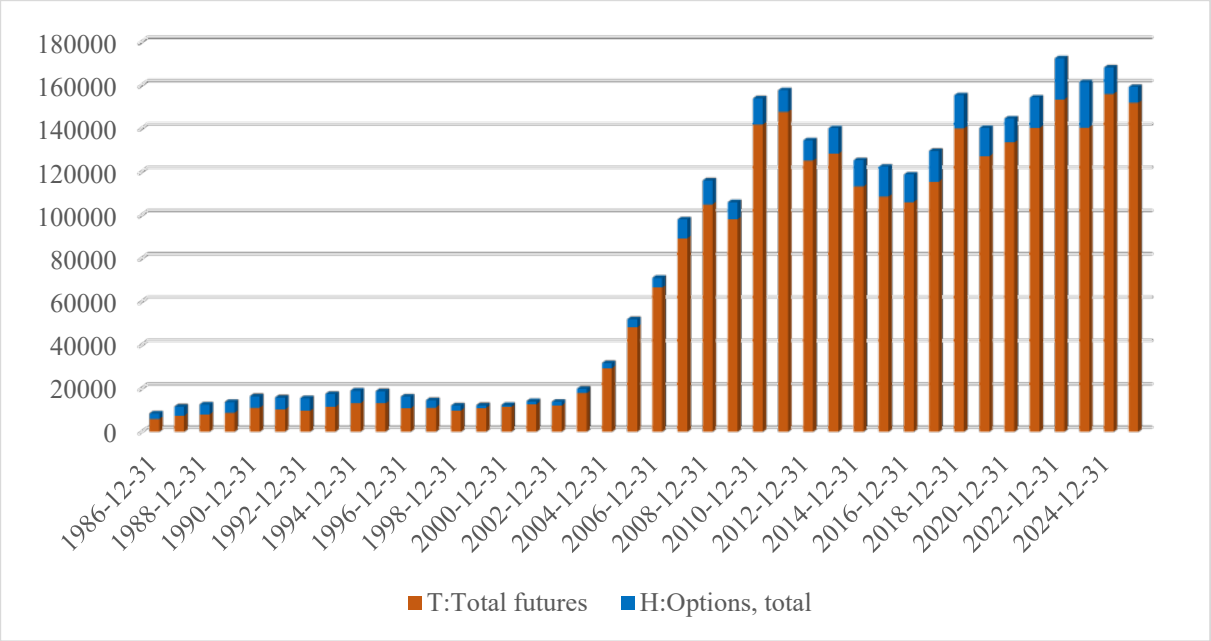


Figure. 2. Global foreign exchange turnover by instrument – exchange-traded
Source: https://data.bis.org/topics/DER

4. Conclusions

1) Exchange rate risk is a problem that became increasingly important after the transition to floating rates in the 1970s. related to the collapse of the Bretton woods system. There were several noteworthy debates in literature, starting from whether there is risk or no risk at all, through the scope of the problem and the difference between uncertainty, risk and exposure. It was shown that the foreign exchange rate risk is not only much more than a „monetary illusion", especially in short term but also **influences purely domestic companies** as well. As for the scope – from analysis of conflicting viewpoints in literature it can be concluded that the term risk should encompass **both the uncertainty and the sum** that is exposed. So, currency exposure is the sensitivity to the changes in exchange rates.

2) In the mentioned crises (Mexican and Asian), events revolve around the unexpected **transition from a pegged to a floating rate**. This is a point that should be remembered by proponents of gold pegs or as until recently – opponents against Bulgaria's Euroarea entry which would imply prolonged currency board retention.[5] Also, a key element in these cases, in the global financial crisis and globalization that led to increasing of exchange rate risk was the **loosening** of **capital movement controls**. The aftermath of those events was that currency markets and capital markets were unfortunately able to decline **simultaneously.**

3) Companies measure exchange rate exposure in several ways – by measuring sensitivity of their value (stock price) to movements, by applying some statistical measure – standard deviation or Value at Risk, etc. The main factor of company exposure is it's level of international involvement (foreign sales and

[5] More on Bulgaria currency board in Zahariev (Radkov, R., & Zahariev, A., 2013)

trade) As for management – generally tree types of methods are used – **financial hedges** (forwards, futures, options, foreign currency loans), **operational hedges** (company diversification) or **pass-through** strategies. Literature shows the first group to be most efficient.

4) This is illustrated by the overall massive increase in exchange rate-related derivatives trading volume seen from the data of the Bank for International Settlements.

References

Adler, M., & Dumas, B. (1984). Exposure to currency risk: definition and measurement. *Financial management*, 41-50.

Aggarwal, R., & Harper, J. T. (2010). Foreign exchange exposure of „domestic" corporations. *Journal of International Money and Finance*, 1619-1636.

Alfaro, L., Calani, M., & Varela, L. (2024). Firms, currency hedging, and financial derivatives. In *Handbook of financial integration.* Edward Elgar Publishing.

Allayannis, G. & Ofek, E. (2001). Exchange rate exposure, hedging, and the use of foreign currency derivatives. *Journal of International Money and Finance, 20*(2), 273 - 296.

Allayannis, G., Ihrig, J., & Weston, J. P. (2001 #2). Exchange-rate hedging: Financial versus operational strategies. *American Economic Review, 91*(2), 391-395.

Bae, S. C., & Kwon, T. H. (2021). Hedging operating and financing risk with financial derivatives during the global financial crisis. *Journal of Futures Markets, 41*(3), 384-405.

Bae, S. C., Kwon, T. H., & Park, R. S. (2018). Managing exchange rate exposure with hedging activities: New approach and evidence. *International Review of Economics & Finance, 53*, 133-150.

Bartov, E., Bodnar, G. M., & Kaul, A. (1996). Exchange rate variability and the riskiness of US multinational firms. *Journal of Financial Economics*, 105-132.

Bartram, S. M., & Bodnar, G. M. (2007). The exchange rate exposure puzzle. *Managerial Finance, 33*(9), 642-666.

Bartram, S. M., & Karolyi, G. A. (2006). The impact of the introduction of the Euro on foreign exchange rate risk exposures. *Journal of empirical finance, 13*(4-5), 519-549.

Bartram, S. M., Brown, G. W., & Minton, B. A. (2010). Resolving the exposure puzzle: The many facets of exchange rate exposure. *Journal of Financial Economics, 95*(2), 148-173.

Beins, B. (2012). *APA Style Simplified: Writing in Psychology, Education, Nursing, and Sociology.* New York: Wiley-Blackwell.

Belk, P. A., & Glaum, M. (1990). The management of foreign exchange risk in UK multinationals: An empirical investigation. *Accounting and Business Research, 21*(81), 3-13.

Calvo, G. A. (1996). Capital flows and macroeconomic management: Tequila lessons. *International Journal of Finance & Economics, 1*(3), 207-223.

Chow, E. H., Lee, W. Y., & Solt, M. E. (1997). The exchange-rate risk exposure of asset returns. *Journal of Business*, 105-123.

Corbett, J., & Vines, D. (1999). The Asian Crisis: lessons from the collapse of financial systems, exchange rates and macroeconomic policy. In J. &. Corbett, *The Asian financial crisis: Causes, contagion and consequences.* Cambridge University Press.

Dominguez, K. and Tesar, L. (2006). Exchange rate exposure. *Journal of International Economics*(68), 188 – 218.

Eichengreen, B., Rose, A. K., & Wyplosz, C. (1996). Contagious currency crises. *NBER Working Paper 5681*.
Einaudi, L., Faucci, R., & Marchionatti, R. (2006). The theory of imaginary money from Charlemagne to the French Revolution. In L. Einaudi, *Selected Economic Essays* (pp. 153-181). London: Palgrave Macmillan UK.
Goldstein, M. (1998). *The Asian financial crisis: Causes, cures, and systemic implications* (Vol. Vol. 55). Peterson Institute.
Granger, C. W., Huangb, B. N., & Yang, C. W. (2000). A bivariate causality between stock prices and exchange rates: evidence from recent Asianflu. *The quarterly review of economics and finance, 3*(40), 337-354.
Hagelin, N., & Pramborg, B. (2004). Hedging foreign exchange exposure: Risk reduction from transaction and translation hedging. *Journal of International Financial Management & Accounting, 15*(1), 1-20.
Han, X., & Laing, E. (2025). Enterprise risk management and foreign currency derivatives usage. *International Review of Economics & Finance*.
He, J. and Ng, L.K. (1998). The Foreign Exchange Exposure of Japanese Multinational Corporations. *The Journal of Finance*, 733-753.
Hodder, J. (1982). Exposure to exchange-rate movements. *Journal of International Economics*, 375 - 386.
Holton, G. (2003). *Value-at-Risk: Theory and Practice.* San Diego, California: Academic Press.
Holton, G. A. (2004). Defining risk. *Financial analysts journal, 60*(6), 19-25.
Hutson, E., & Laing, E. (2014). Foreign exchange exposure and multinationality. *Journal of Banking & Finance*(43), 97-113.
Hutson, E., & O'Driscoll, A. (2010). Firm-level exchange rate exposure in the Eurozone. *International Business Review, 19*(5), 468-478.
Ito, T., Koibuchi, S., Sato, K., & Shimizu, J. (2016). Exchange rate exposure and risk management: The case of Japanese exporting firms. *Journal of the Japanese and International Economies*, 17-29.
Jacque, L. L. (1983). Management of foreign exchange risk: a review article. *International Accounting and Transnational Decisions*, 361-384.
Jonasson, T., Malik, S., Chung, K. & Papaioannou, M. G. (2024). Managing Foreign Exchange Rate Risk: Capacity Development for Public Debt Managers in Emerging Market and Low-Income Countries. *International Monetary Fund, 2024*(167).
Jorion, P. (1990). The exchange-rate exposure of US multinationals. *Journal of business*, 331-345.
Krugman, P. R., & Obstfeld, M. (1997). *International Economics: Theory and Policy.* Reading: Addison-Wesley Inc.
Lan, L. H., Chen, C. C., & Chuang, S. S. (2015). Exchange rate risk management: what can we learn from financial crises? *Economic Modelling, 45*, 187-192.
Lan, L. H., Chen, C. C., & Chuang, S. S. (2015). Exchange rate risk management: what can we learn from financial crises? *Economic Modelling, 45*, 187-192.
Laursen, S., & Metzler, L. A. (1950). Flexible exchange rates and the theory of employment. *The Review of Economics and Statistics, 4*(32), 281-299.
Lissakers, K. (2001). Chapter 1 The IMF and the Asian Crisis: A View from the Executive Board. In *Asian Financial crises Origins, implications and solutions.* International Monetary Fund.
Madura, J. (2013). *International Financial Management 12th ed.* Mason, OH: Cengage Learning.

Masson, M. P. R., & Agénor, P. R. (1996). The Mexican Peso crisis: Overview and analysis of credibility factors. *1996*(006).

Muller, A., & Verschoor, W. F. (2007). Asian foreign exchange risk exposure. *Journal of the Japanese and international economies, 21*(1), 16-37.

Ogawa, E., & Luo, P. (2024). Macroeconomic effects of global policy and financial risks. *International Journal of Finance & Economics*, 177–205.

Pantzalis, C., Simkins, B. J., & Laux, P. A. (2001). Operational hedges and the foreign exchange exposure of US multinational corporations. *Journal of International Business Studies*, 793-812.

Papaioannou, M. G. (2006). *Exchange rate risk measurement and management: Issues and approaches for firms. (IMF Working Paper No. 06/255).* IMF. Retrieved from https://ssrn.com/abstract=947372

Papaioannou, M., and E.K. Gatzonas. (2002). Assessing Market and Credit Risk of Country. (J., Ed.) *Global Risk Management: Financial,, 3*, 61–79.

Radkov, R., & Zahariev, A. (2013). The currency board in bulgaria: theoretical reflections and empirical results. *Economic Archive, Available at SSRN 2830417*.

Shapiro, A. C. (2008). *Multinational financial management.* John Wiley & Sons.

Sikarwar, E. (2018). Exchange rate fluctuations and firm value: Impact of global financial crisis. *Journal of economic studies, 45*(6), 1145-1158.

Spufford, P. (1988). *Money and its Use in Medieval Euope.* Cambridge: Cambridge University Press.

Van Deventer, D. R., Imai, K., & Mesler, M. (2004). *Advanced financial risk management.* John Wiley & Sons.

Wihlborg, C. G. (1980). Currency Exposure-Taxonomy and Theory. In a. C. R. M. Levich, *Exchange Risk and Exposure-Current Developments in International Financial Management* (pp. 23-58). Lexington Books, D. C. Heath and Co.

Williamson, J. (2009). *A short history of the Washington Consensus* (Vol. 15). Law & Bus.

Ye, M., Hutson, E., & Muckley, C. (2014). Exchange rate regimes and foreign exchange exposure: The case of emerging market firms. *Emerging Markets Review*(21), 156-182.