Stock Market reactions to interest rate changes and the influence of investor sentiment.

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Abstract – English

This thesis explores how changes in interest rates and investor sentiment shape stock market performance, focusing on the short-term reactions around multiple event windows following central bank announcements across different regions. Using an event study approach, it measures Cumulative Abnormal Returns (CARs) to understand how markets respond to interest rate changes and shifts in the Consumer Confidence Index (CCI) between 1980 and 2023.

Consistent with previous research, the study finds that rising interest rates tend to lead to negative market returns, especially in regions like Canada and Japan, where these reactions are the most pronounced. However, the impact of investor sentiment isn't uniform across the board. While past studies often suggest widespread effects of sentiment on markets, our findings show that it plays a significant role in regions such as Japan and the European Union, but less so in places like Canada and the UK.

The research also dives into how industries respond to the combination of interest rate direction and investor sentiment. Certain sectors in Japan and Europe showed strong reactions, supporting the idea that some industries are more sensitive to these economic factors. On the other hand, markets in Switzerland and the UK were largely unaffected, which contrasts with some earlier findings.

Overall, this study confirms and adds to previous research by showing that while macroeconomic factors influence stock markets, the strength and nature of these effects differ across regions and sectors. These insights are valuable for investors and policymakers, especially in times of shifting monetary policies.

Abstract – Portuguese

Esta tese explora a forma como as alterações nas taxas de juro e o sentimento dos investidores influenciam o desempenho dos mercados de ações, centrando-se nas reações de curto prazo após os anúncios dos bancos centrais em diferentes regiões.

Em consonância com estudos anteriores, o estudo conclui que o aumento das taxas de juro está associado a retornos negativos, especialmente em regiões como o Canadá e o Japão, onde estas reações são mais pronunciadas. No entanto, o impacto do sentimento dos investidores não é uniforme em todas as regiões. Embora estudos anteriores frequentemente sugiram efeitos generalizados do sentimento nos mercados, as nossas conclusões mostram que este desempenha um papel significativo em regiões como o Japão e a União Europeia, mas menos em regiões como o Canadá e o Reino Unido.

A análise também mostra a forma como os sectores respondem à combinação da direção das taxas de juro e do sentimento dos investidores. Certos setores no Japão e na Europa mostram fortes reações, apoiando a ideia de que algumas indústrias são mais sensíveis a estes fatores económicos. Os mercados na Suíça e no Reino Unido não foram, em grande medida, afetados, o que contrasta com algumas conclusões anteriores.

Em termos gerais, este estudo confirma e complementa estudos anteriores, mostrando que, embora os fatores macroeconómicos influenciem os mercados de ações, a força e a natureza desses efeitos diferem consoante as regiões e os setores. Estes conhecimentos são valiosos para investidores e decisores políticos, especialmente em tempos de políticas monetárias variáveis.

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1. Introduction

The intertwined relationship between interest rate movements and stock market performance has long been a focal point and subject of interest within financial economics. Drawing the attention of not only central banks but also investors, policy makers and other market participants. Interest rates are a central component of macroeconomic policy, and shifts in these rates can have profound effects on stock market behavior. The conventional wisdom taught in financial theory, posits that increases in interest rates typically exert downward pressure on stock valuations in the long term, as investors tend to gravitate towards other asset classes such as bonds for their relatively lower risk profile. The interest rates set by a central bank have a profound impact on the money supply in their respective economy, which in turn influences various economic factors, including stock valuations. When a central bank raises its interest rates, borrowing money becomes more expensive for banks at their respective central bank. Consequently, lending money also becomes more expensive for consumers and businesses, usually leading to an overall reduction in borrowing, spending and investments. This change in economic activity can diminish corporate earnings and reduce investor confidence, potentially causing a decline in stock prices. Conversely, when interest rates are lowered, borrowing costs for lenders decrease, stimulating borrowing, spending and investment. This can boost corporate earnings and investor optimism, driving stock prices north. Moreover, lower interest rates can make stocks more attractive relative to bonds and other fixed-income investments, further bolstering stock valuations.

Additionally, changes in interest rates can affect exchange rates, capital flows, and overall economic growth, which indirectly impact the respective economies and affect stock market performance. For a central bank, understanding these interrelationships is vital in formulating

monetary policy to achieve objectives such as controlling inflation, promoting economic growth, and maintaining financial stability while also considering the implications for stock valuations and investor behaviour. Accompanying rising interest rates, newly issued bonds see an increase in expected pay-out without a change in risk structure making them more attractive to investors. However, this relationship is far from deterministic and multiple factors contribute to the nuanced dynamics observed in financial markets.

In recent years markets have witnessed a significant shift in interest rate policy worldwide. Most developed economies experienced a notable series of increases in interest rates which were widely classified as an effort to fight rising inflation numbers. For example, in the United States the Federal Open Market Committee (FOMC) has embarked on a path of monetary tightening. Over the past two years, starting from. March 16, 2022, it increased the interest rate from a near-zero baseline - a status quo maintained for the previous two years during the Covid 19 pandemic between 2020 and 2022 - to a substantial 5.25% by implementing a series of eight interest rate hikes (FED 2023). The FOMC justified this shift as a necessary response to multiple economic indicators such as rising inflationary pressures, economic growth, and employment (of Governors of the Federal Reserve System 2022). Coinciding with this period of interest rate adjustment, the S&P 500 index witnessed significant volatility and fluctuations, depreciating by as much as 25% from its then all-time high reached in January 2022, only to gradually regain ground amidst continued interest rate hikes through 2023. This suggests that interest rates are not the single determining factor influencing stock valuations, prompting an exploration into the underlying additional factors driving market behaviour.

This thesis seeks to examine the combined influence of interest rate changes and the investor sentiment Consumer Confidence Index (CCI) on short term stock performance across regions. The thesis will additionally conduct a stock performance analysis by industry sector to provide further insights to stock market participants and aims to find significant abnormal returns around the dates of interest rate changes.

While the impact of interest rate changes on stock prices has widely been studied, the role of investor sentiment – defined as the collective beliefs about future cash flow and investment risk, often deviating from available evidence (Baker and Wurgler 2007) – remains underexplored, particularly in the context of its interaction with interest rate changes. Investor Sentiment, often shows to be irrational and divergent from fundamentals, adds unpredictability to market dynamics (G. W. Brown and Cliff 2001). Investor sentiment has garnered substantial attention within financial literature over the past two decades. Since approximately the turn of the millennium, researchers and practitioners alike have increasingly recognized the significant

influence of investor sentiment on financial markets and especially the stock market. This acknowledgment stems from a growing understanding that human behaviour and emotions often drive market movements, challenging the traditional rationality assumptions of classical quantitative economic models established in finance theory. Consequently, exploring the dynamics of investor sentiment has become imperative for comprehensively understanding market behaviour, asset pricing, and investment decision-making processes. It is influenced by macroeconomic indicators, news outlets, political events, and market trends including interest rate fluctuations (Fang et al. 2021). Various studies highlight the impact of sentiment on asset returns and volatility across different markets (Fang et al. 2021); (Qiao et al. 2022); (Fasanya, Oyewole, and Oliyide 2022) especially during extreme sentiment shocks. Economic Policy Uncertainty (EPU) also affects sentiment and market dynamics as shown by (Zhang et al. 2019). As found in (Časta 2023), despite the recognized importance of sentiment, forecasting stock returns remains challenging, with historical predictors like interest rates and inflation losing predictive power over time which could be an indicator of markets becoming more efficient over time. On the other hand, in a world where information is spreading faster than ever, textual analysis of news and social media data shows promise in predicting sentiment-driven market movements. However, comprehensive studies integrating diverse data sources and individual stock-level sentiment analysis are needed for a deeper understanding of sentiment's role in financial markets.

The primary aim of this thesis is to quantify and measure the combined influence of interest rate changes and investor sentiment on stock market reactions around the announcement dates of central banks policy decisions across regions. Rather than rehashing the debate on the existence of sentiment driven effects on the stock market– an established phenomenon in existing financial literature – the focus will lay on analysing and quantifying the magnitude of effects measured as abnormal returns based on the market model introduced by (MacKinlay 1997) within the context of interest rate adjustments. To achieve this objective, the methodology of an event study, a commonly employed approach in financial research will be utilized, ranging over the period from 1980 to 2023, where data is available, to cover a diverse spectrum of economic environments and interest rate regimes. Specifically, the research will analyse market reactions around central banks announcements regarding changes in target interest rates, while concurrently assessing investor sentiment indicators. By elucidating the interplay between interest rate dynamics, investor sentiment and stock market behaviour, this thesis aims to deepen the understanding of financial market dynamics. The findings from this analysis provide valuable insights for investors, policymakers, and researchers, offering

practical guidance in navigating and interpreting market trends under varying economic conditions.

The subsequent of this thesis will present a comprehensive review of relevant literature, examine prior research on interest rate and investor sentiment effects on stock performance separately as well as in combination. The following section will outline the theoretical framework guiding the analysis and portray the conceptual underpinnings of interest rate impacts and investor sentiment. Subsequent the methodology employed in conducting the event study analysis, including data sources, sample selection, and analytical techniques will be described in detail. The thesis will continue by stating the empirical findings followed by a discussion of implications and limitations. To finalize, the ultimate chapter will offer concluding remarks and will lay out avenues for future research to be conducted.

2. Literature Review

2.1 Efficient Market Hypothesis

Stock returns are often contextualized through the lens of the random walk hypothesis, initially introduced by Fama in 1965 and further discussed in (Fama 1995) and (Malkiel and Fama 1970). Central to this analytical framework is the Efficient Market Hypothesis (EMH), also developed and first formulated by Fama, which served as a foundational concept in economics helping to understand market dynamics and making informed investment strategies. The EMH has been a cornerstone theory in modern financial economics, shaping the general understanding of market behaviour. This Hypothesis establishes the foundation of the present research and delineates three levels of market efficiency: Weak form, semi strong form, and strong form of market efficiency.

The weak form of the EMH posits that all past market prices, data, and historic information is fully reflected in the current stock prices, but the market does not anticipate current events or possesses access to private information. This level of efficiency is akin to the hypothesis of a random walk of stock performance. It implies that technical analysis cannot consistently generate abnormal returns. Empirical studies testing this form have yielded mixed results. Especially early studies could not reject a random walk, supporting the hypothesis (Fama 1995) while others finding evidence of short- term predictability of stock prices (Shehadeh and Zheng 2023). (Lo & MacKinlay, 1988) conclude that stock returns do not follow a random walk through investigating the sampling distributions of variance ratios over different sampling

intervals. (Claessen Dasgupta & Glen, 1999) rejected the Null Hypothesis based on a sample of emerging economies stock markets.

Beyond the weak form, the semi- strong form of the EMH extends the hypothesis to incorporate all current and publicly available information into stock prices. Under this assumption, fundamental analysis and other forms of public information should not consistently lead to generating abnormal returns. However, controversies persist, with debates revolving around the efficiency of market reaction to new information and the role of investor behaviour. Research on the semi-strong form of the EMH has yielded both supportive and challenging findings. On the supportive side, studies such as (Barber and Odean 2008) and (Chordia, Subrahmanyam, and Anshuman 2001) provide empirical evidence suggesting that stock prices adjust quickly and accurately to new publicly available information. These studies indicate that investors cannot consistently earn abnormal returns by trading on publicly available information, supporting the notion that markets are efficient with respect to public information. Additionally, research by (Malkiel et al. 2002) and (Wurgler and Zhuravskaya 2002) further supports the semi-strong form of the EMH by examining trading activity, idiosyncratic risk, and arbitrage impact on stock prices.

On the other hand, challenging findings also exist in the literature. Critics of the semi-strong form of the EMH point to anomalies and market inefficiencies that seem to persist despite the availability of public information. For instance, research on behavioural finance highlights irrational investor behaviour and cognitive biases that can lead to market anomalies, such as momentum and value effects, which seem to contradict the predictions of the EMH. Studies by (De Bondt & Thaler, 1985) and (Shleifer 2000) on behavioural anomalies and market overreaction challenge the notion of market efficiency and suggest that investors might be able to exploit certain patterns or anomalies to earn abnormal returns.

Lastly the strong form of the EMH asserts that all information, encompassing public and private information, is fully reflected in stock prices, positing that insider information does not exist in theory. It hence leaves no room for investors to achieve abnormal returns even with insider information. For example, before, during or after the announcement of interest rate movements, as all relevant information would have already been incorporated in stock prices. Proponents of the strong form argue that any potential advantage derived from private insider information is quickly eroded by the competitive nature of financial markets where informed traders compete to exploit any temporary mispricing opportunities (Malkiel and Fama 1970).

Despite its theoretical appeal, more recent empirical evidence challenging the strong form has emerged, suggesting the presence of insider trading and market anomalies. Research

documenting the existence of insider trading profits and persistent abnormal returns suggest that certain investors may possess an informational advantage that enables them to consistently outperform the market. (Leković 2018) found multiple occasions where insider trading turned out to be profitable and argues that because there are laws against insider trading it exists and posits a competitive advantage, the strong form of the EMH does not hold. It is widely acknowledged that perfectly efficient markets do not accurately reflect reality. Laws prohibiting insider trading serve as a testament to the limitations of the strong-form Efficient Market Hypothesis (EMH). Previous studies demonstrating that insider trading generates above-average returns further underscore the inadequacy of strong-form market efficiency.

After studying past literature this thesis is following Malkiel`s observation that as the twenty-first century dawned, the before unquestioned dominance of the EMH has begun to wane among financial economists and statisticians (Malkiel 2003), especially the stronger forms are falling into question. Increasingly, there emerged a consensus that stock prices may not entirely be unpredictable. A new wave of researchers in economics began to emphasise the role of psychology and behaviour in shaping stock price movements, especially in the short term. Patterns in past stock prices and certain fundamental valuation metrics are often considered by investors to gain insight into future price movements. However, the idea that these patterns could enable investors to achieve returns exceeding the level of risk taken is more controversial. Malkiel also posits that if such opportunities do exist, they are likely short-lived, stating, “If any $100 bills are lying around the stock exchanges of the world, they will not be there for long.”

The shifting perspective on the EMH has led to a reassessment of traditional investment strategies and the development of innovative methodologies to dissect and interpret stock market dynamics. This re-evaluation involves integrating investor sentiment into various analytical models, aiming to unearth opportunities for generating abnormal returns in the stock market. By integrating investor sentiment into the examination of stock behaviour surrounding interest rate fluctuations this research aims to combine the traditional approach of using fundamental interest rate data with more contemporary methodological approaches by integrating psychological factors.

2.2 Importance of stock Market for overall economic performance

The Stock market serves as a cornerstone of the modern global economic infrastructure, facilitating the issuance, purchase and stales of stocks which are defined as ownership or equity in a corporation (Teweles 1998). One Stock represents a fractional private or institutional

ownership in a single corporation. This dynamic marketplace operates both through formal exchanges as well as over the counter (OTC) transactions, providing investors with opportunities to participate in the ownership and growth of various enterprises. At its core the stock market plays a dual role, fulfilling essential functions that contribute to economic vitality and wealth creation.

The primary purpose of the stock market lies in its capacity to furnish capital to companies seeking to expand their operations and pursue growth opportunities. By issuing shares, companies raise funds from outside the corporation in exchange for a fraction of their ownership, avoiding reliance on debt financing. This approach reduces interest payments and boost financial flexibility to invest in growth opportunities. Additionally, the stock market offers investors the opportunity to a share in profits of publicly or privately traded companies either through dividends or increases in stock valuations. Dagar (Dagar 2014) found a “strong positive relationship between stock market development and economic growth” since serving as a vital intermediary, the stock market provides the opportunity to accumulate capital from savers in one place. It fosters economic growth by efficiently exchanging capital between these entities and contribute too efficient capital allocation in the economy. As companies expand, they often invest in research and development (R&D) initiatives to innovate and stay competitive. The pursuit of knowledge drives technological advancements, industry- wide innovation and boosts overall productivity. Resulting progress foster the creation of new products, services, and industries, driving transregional economic growth and competitiveness on a global scale.

Moreover, as companies grow, they contribute significantly to government revenue through a diverse set of taxes. Corporate taxes, payroll taxes, secondary taxes on goods and taxes on profits generated, directly or indirectly bolster public treasury funds as a result of the expansion of enterprises. This enables governments to fund essential services such as education, healthcare, and infrastructure development. In turn this enhances the overall quality of life, attractiveness of the region and overall productivity in the economy.

Understanding the influence of their actions on the stock market is crucial for central banks and regulators. As of the European Central Bank (ECB) its main task is to maintain price stability and so preserve the purchasing power of the respective currency in the euro area. Also, price stability is the best contribution that monetary policies can make to economic growth. Price stability also is necessary for stock markets to function properly so that investors are insured that the value of their investment, in this example for shares donated in Euro, will not be impacted significantly by currency developments like hyperinflation.

2.3 Interest Rate influence on Stock market

The significant negative relationship between interest rates and stock valuations was shown by multiple researchers such as (Alam, Gazi, and Uddin 2009). They found that in their multi country sample the interest rate stands in significantly negative relation to changes in long term share price development. Also, for the majority of countries examined the event of a change in interest rate has shown to have significant impact on the share price development. They argue that in case the interest rate can be directed by decisionmakers, it would directly benefit their financial economy and stock exchanges by attracting more investors and ensures long-term commitments in real capital. Following this line of argument, the impact of decision-making by central banks, which independently dictate interest rate movements in their respective currency zones, extends beyond the stock market to impact the overall economy and vice versa. The interest rate stands as a critical macroeconomic variable intricately linked with economic growth and is typically viewed as the cost of borrowing capital. In the (Cambridge Dicionary) it is defined as "the percentage amount that you pay for borrowing money, or get for lending money, for a period of time, usually a year". It signifies the price to pay for the utilization of funds over a specified timeframe. For borrowers, the interest rate represents the expense incurred for borrowing money, often termed as the borrowing rate. Conversely, lenders perceive it as the fee levied for extending loans, known as the lending rate. This dual perspective underscores the multifaceted role of interest rates in shaping borrowing and lending behaviours within an economy. Generally, interest rates influence stock prices through two primary channels. Firstly, interest rate fluctuations directly influence the discount rates used in conventional equity valuation models in terms of cost of debt and indirectly the weighted average cost of capital (WACC). Secondly, changes in interest rates alter firms` expectations regarding future cashflows and cost of investments by modifying borrowing costs. As (Ferrer, Bolós, and Benítez 2016) discuss the longer the investment horizon, the more influence macroeconomic indicators such as interest rates hold in the decision-making process. Short term investors usually focus on investor sentiment measures or trade around specific events.

The advent of behavioural finance in the early 21st century marked a significant shift in research within the field of finance. The interdisciplinary approach, which integrates principles from psychology and sociology, redirected attention from traditional models like the EMH to the behavioural finance acknowledging the role of psychology in explaining irrational and illogical behaviours observed in financial markets. The paradigm shift is departing from traditional models based on expected utility and arbitrage assumptions. (Ritter 2003) outlines two main

points on how behavioural finance adopts a broader approach incorporating cognitive psychology and the concept of limits to arbitrage. Cognitive psychology focuses on the exploration of individuals thoughts and feelings, revealing systematic errors such as overconfidence and the tendency to overweight recent experiences, in literature commonly referred to as recency bias. Additionally, individuals are more tended to act driven by personal preferences rather than completely rational, as earlier literature assumed and therefore add further distortions. Behavioural finance embraces this body of knowledge rather than dismissing it by recognizing its relevance in understanding market behaviour. Limits to arbitrage, the simultaneous purchase and sale of the same asset in different markets to exploit marginal differences in prices to exploit market inefficiencies, involve predicting circumstances under which arbitrage forces will be effective and when they will not. (Naseer and Bin Tariq 2015) comprehended that unlike traditional economic theory, psychological theory could account for the irrationality and illogicality in behaviours.

2.4 Sentiment influences on Stock market

Investor sentiment plays a crucial role in shaping stock market dynamics, influencing asset prices and directing market trends. Previous research has delved into the complexities of investor sentiment and its impact on stock market behaviour, shedding light on the mechanisms through which sentiment- driven factors contribute to market volatility and inefficiency. Studies such as those by (Baker and Wurgler 2007) and (Baker and Stein 2004) have explored the link between investor sentiment and stock returns, highlighting the role of sentiment driven short term fluctuation in asset prices. They demonstrate that shifts in investor sentiment can lead to deviations from fundamental valuations, contributing to market over- or underreactions as well as irrational spreads in the market.

Furthermore, research by (Barberis, Shleifer, and Vishny 1998) and (De Long et al. 1990) has examined the influence of investor sentiment on market anomalies and trading behaviours. These studies have identified various behavioural biases, such as herding behaviour and overconfidence, that can arise from investor sentiment and market efficiency. In financial studies two prominent patterns were uncovered: underreaction and overreaction. It was shown that security prices underreact to new information for time frames within one year. Consequently, news is gradually incorporated into stock prices, leading to positive autocorrelations over these periods. Conversely overreaction is to be witnessed across longer time horizons which span Three to five years, where security prices react excessively to consistent patterns of news. Securities with a history of positive news tend to become

overvalued, resulting in low average returns afterward. This phenomenon implies that securities with sustained good performance receive inflated valuations that eventually revert to the mean. This evidence challenges the efficient market theory by suggesting that sophisticated investors can exploit underreaction and overreaction to earn superior returns without taking on additional risk. While Fama and French (1996) introduced a three-factor model to explain market overreactions, they faced challenges in addressing the persistence of short-term returns or underreaction. Furthermore, this evidence poses a challenge to behavioural finance theory, as early models fail to adequately explain these phenomena. The primary challenge lies in elucidating how investors form beliefs that lead to both under- as well as overreaction.

2.5 Arbitrage Pricing Theory

The Arbitrage Pricing Theory (APT), introduced by (Ross 1976), stands as a fundamental framework in financial economics, offering insights into asset pricing and market efficiency beyond the traditional models like the Capital Asset Pricing Model (CAPM). Rooted in the EMH, the APT posits that asset prices adjust quickly to new information and arbitrage opportunities are swiftly exploited. Rosses APT challenges the assumptions of the traditional CAPM by suggesting that asset prices are determined not only by systematic risk but also various other sources of risk. Further studies conducted by Ross has shown the ability to capture the relationship between risk factors and asset returns. His research explores how APT allows for a more flexible and realistic approach to asset pricing and examines empirical evidence supporting the APT and its application in portfolio management and investment strategies. By understanding the underlying risk factors driving asset returns, investors can better assess investment opportunities and mitigate portfolio risk. Overall, it provides valuable insights into the complexities of asset pricing and the role of arbitrage in financial markets. Moreover, APT has significant implications for asset pricing and portfolio management. By incorporating multiple risk factors into the analysis, APT enables investors to identify undervalued or overvalued assets, potentially leading them to make more informed investment decisions. Additionally, the APT underscores the importance of diversification in portfolio construction, as it advises investors to spread risk across different assets and risk factors.

2.6 Combination of multiple factors

Existing research has extensively examined how stock market dynamics are influenced by multiple factors, including investor sentiment and interest rates. Multiple factor models acknowledge that asset returns are influenced by a combination of factors rather than one.

Importantly, research has shown that incorporating multiple factors into asset pricing models can increase the predictability of stock movements and enhance the understanding of market behaviour. Investor sentiment, characterized by psychological biases and emotions, has been found to significantly impact stock prices and market trends. Studies such as those by (Baker and Wurgler 2007) and (Tetlock 2007) have demonstrated the predictive power of sentiment indicators derived from news articles especially in the short term, social media posts, and other sources in forecasting stock market movements. Tetlock found that high pessimism in the media accelerates downward pressure on market prices in the short term before the valuation swings back towards fundamentals. Interest rates, controlled by central banks are influenced by economic conditions and play a pivotal role in shaping stock market behaviour. Changes in interest rate can affect cost of capital, borrowing cost for companies and investor risk appetite. Research by (Alam, Gazi, and Uddin 2009) and Claessens (1995) has highlighted the negative relationship between interest rates and stock valuations, illustrating how shifts in interest rates can impact long-term share price development and investor behaviour. Moreover, studies have explored the interplay between investor sentiment and interest rates, revealing complex interactions between psychological factors and economic indicators. For instance, changes in interest rates can influence investor sentiment by signalling shifts in economic outlook and monetary policy. Research by Baker and Stein (2004) and Da et al. (2017) has examined how sentiment-driven factors interact with interest rate movements to affect stock market volatility and efficiency.

Choosing interest rates and investor sentiment as the key factors in my thesis stems from their significant roles in shaping stock market behaviour. Interest rates, influenced by central banks, affect borrowing costs and investor risk appetite, directly impacting corporate and market dynamics. Investor sentiment reflects market psychology, driving stock prices beyond fundamentals and interacting with interest rate changes. As discussed above, existing literature supports the existence of the single relationships, highlighting their influence on stock valuations, volatility, and efficiency. In the forthcoming Event Study methodology, I will employ these factors in combination to empirically analyse their effects on stock returns around specific market events, aiming to offer a deeper understanding of their interplay and impacts.

2.6.1 Event Study Methodology

Event studies have long been a cornerstone in financial research for evaluating the impact of specific events on stock prices. These studies employ various methodologies to estimate abnormal returns surrounding specific events of interest. One commonly utilized approach is

the market model, which assumes a linear relationship between stock returns and market returns (Strong 1992). Under this model abnormal returns are calculated as the difference between the actual returns of a stock and the returns predicted by the market model based on previous data during the event window. Alternative approaches are the event time study, calendar time study as well as non- parametric methods. Event time studies are useful when events affect firms differently or when market-wide factors are deemed insignificant (S. J. Brown and Warner 1980).

Calendar time studies compare the performance of the event firm to a control group over a specified period, accounting for market- wide factors using non- event firms with similar characteristics. Non- parametric methods, such as event study tests based in ranks or order statistics are also employed in event studies. These methods do not rely on specific return distribution assumptions and provide robust results in the presence of outliers or non- normal data (MacKinlay 1997).

3. Methodology

This thesis is utilizing an event study methodology using the market model approach. Therefore, this research estimates expected returns by leveraging historical correlations between stock returns and market returns, assuming a linear relationship between these two. This framework serves as a benchmark to gauge abnormal returns. The research comprises three distinct phases, each aimed at exploring different aspects of the interplay between interest rate changes, investor sentiment and stock market behaviour. The three phases are outlined as follows:

(1) Isolated impact of Central Bank Interest Rate announcements on stock prices

This part aims to assess whether announcement of interest rate changes by central banks exert a discernible influence on aggregate share prices around the announcement dates in the short term, as reflected in the main corresponding indices.

(2) Isolated impact of Investor Sentiment on stock prices

This section delves into the relationship between investor sentiment, measured by the Consumer Confidence index (CCI), and stock market behaviour surrounding the announcement dates of interest rate changes within the same timeframe as (1) to ensure consistency of the research.

(3) Combined Influence of interest rate Direction and Investor Sentiment on market behaviour

The final segment of the analysis focuses on the combined impact of the two single factors introduced. It investigates the combined impact of interest rate direction and the Consumer Confidence Index on market performance and aims to define levels of magnitude of interest rate changes and or Investor sentiment whether one signalling factor has primer influence on short term market reactions.

The initial event of interest is the announcement date. For each section, results are reported as cumulated abnormal returns of the leading market indices in the corresponding economic area. Cumulative abnormal returns (CAR) over the event window will be calculated by implementing the market model approach. The Market Model Event study methodology pioneered by (Fama et al. 1969) posits a linear relationship between security returns and market portfolio returns. According to (CHAVALI, ALAM, and ROSARIO 2020) unlike alternative models such as the index model and CAPM, the market model is esteemed for its robustness in detecting abnormal returns (Salamudin, Ariff, and Md Nassir 1999). With proven validity across diverse market conditions (S. J. Brown and Warner 1985), the market model offers versatility and precision, making it a powerful tool for event studies. In this research case the event window should include days before and after the announcement date itself as information about the decision could have been leaked during the process and sometimes the decisions were published on bank holidays while markets are closed. It was decided to use an event window spanning from one bank day before the announcement was made t-1, to Four days after the announcement date t+4. Different timeframes will be examined to further contribute to the existing knowledge. By leveraging the market model methodology, this study aims to rigorously analyse stock market reactions to central bank interest rate announcements, while also assessing the influence of investor sentiment. This approach ensures reliability and validity, facilitating meaningful insights into financial market dynamics.

3.1 Hypothesis

Based on the aforementioned methodology, this dissertation aims to test the following hypothesis:

$Hypothesis_1$

Central Bank announcement of Interest rate changes significantly influence aggregate share prices in the main corresponding indices in the short term and produce cumulated abnormal returns using the market model over the event windows.

Null Hypothesis (H0): Central bank announcements of interest rate changes do not significantly influence aggregate share prices in the main corresponding indices in the short term, and the

cumulative abnormal returns (CARs) during the specified event windows do not deviate significantly from zero.

$Hypothesis_2$

There exists a significant relationship between investor sentiment, as measured by the Consumer Confidence Index (CCI), and stock market behaviour. Specifically, fluctuations in the CCI are hypothesized to correlate with changes in stock prices, during relevant periods exhibiting a non-zero deviation from zero.

Null Hypothesis (H0): There is no significant relationship between investor sentiment, as measured by the CCI, and stock market behaviour.

$Hypothesis_3$ The combined influence of interest rate direction and investor sentiment, as measured by the Consumer Confidence Index (CCI), produces significant abnormal returns in the stock market during specified event windows. Distinct patterns in short-term market reactions are hypothesized to correlate with specific combinations of interest rate direction and CCI values.

Null Hypothesis (H0): There is no significant combined influence of interest rate direction and Consumer Confidence Index (CCI) levels on abnormal returns in the stock market. Any observed patterns in short-term market reactions are random and not contingent upon the combination of interest rate direction and CCI values.

$Hypothesis_4$ industries across regions react to specific combinations of interest rate changes and Consumer Confidence Index (CCI) values consistently with distinct patterns in short-term market reactions.

Null Hypothesis (H0): Industries across regions do not react to specific combinations of interest rate changes and Consumer Confidence Index (CCI) values in a consistent manner, and no distinct patterns in short-term market reactions are observed. Any observed differences in industry reactions are random and not attributable to the interaction between interest rate changes and CCI values.

By structuring the methodology around these hypotheses, this study aims to provide valuable insights into the complex interplay between interest rate changes, investor sentiment, and stock market dynamics.

3.2 Industry specific analysis

In conducting this study, it recognizes the importance of delving beyond the surface-level analysis of aggregate market indices to gain a deeper understanding of the intricate dynamics at play within the stock market. To achieve this, the deliberate decision was made to incorporate industry-specific data into our methodology. This choice is underpinned by the recognition that the stock market comprises a diverse array of sectors, each operating within its own unique set of conditions and responding differently to external stimuli. To categorize and analyse industry-specific data from the S&P 500, the research will utilize the Standard Industrial Classification (SIC) system. The SIC system provides a standardized framework for classifying industries based on their primary economic activities, allowing for consistent and comparable analysis across sectors. The corresponding industry-specific data was obtained from the Wharton Research Data Services (WRDS) / Centre for Research in Security Prices (CRSP) database, ensuring the reliability and accuracy of our analysis.

Industry-specific data offers several distinct advantages in the context of the study. Firstly, it allows to explore the differential impacts of interest rate changes and investor sentiment across various sectors. Different industries may exhibit varying degrees of sensitivity to these factors, influenced by factors such as capital structure, regulatory environment, and consumer behaviour. By examining industry-specific data, this study aims to discern sectoral outliers and anomalies that may not conform to broader market trends, thus providing a more accurate and nuanced understanding of market dynamics.

Secondly, incorporating industry-specific data enhances the predictive power of the analysis. By identifying sectoral drivers of market performance, more targeted investment strategies and predictive models that account for the unique characteristics of individual industries can be developed based on the results. This enables market participants to make more informed investment decisions and mitigate risks associated with sectoral vulnerabilities. Moreover, industry-specific analysis facilitates a holistic understanding of market dynamics by considering both macro-level trends and micro-level nuances. By juxtaposing industry-specific data with aggregate market indices, we can identify correlations and divergences that offer valuable insights into the underlying mechanisms driving market behaviour.

3.3 Definition and Identification of the event of interest

The focal event under investigation in this study pertains to the announcement dates of alterations to the central bank target interest rates, encompassing both the direction and

magnitude of these changes. These events represent crucial junctures in the financial landscape, which can be seen by extensive media coverage from financial news outlets around central bank meetings at the end of which rate adjustments typically transpire. This is because signals of shifts in monetary policy can have far reaching implications for various sectors of the economy, notably the stock market.

Identification of these events involves sourcing and compiling a comprehensive list of announcement dates wherein central banks publicly communicate their target interest rates. Commonly, the new target rate is in effect with communication, therefore the lists of historic interest rate developments most central banks publish can be used for event identification purposes. For example, in the United States, the Federal Reserve`s Federal Open Market Committee (FOMC) typically announces changes to the federal funds rate – the interest rate at which banks lend funds to each other overnight – following their scheduled meetings. Similarly, in other regions and economies, such as the Eurozone, the European Central Bank (ECB) announces changes to its main refinancing rate, while the Bank of England (BOE) announces changes to the Bank Rate. Each central bank adheres to its own schedule and protocol for announcing changes to interest rates.

It should be noted that not at every meeting a change of interest rates is decided, and the study only focuses on events which outcome was a movement of the indicator. Once the announcement dates are accurately identified, they serve as pivotal junctures for analysis in the event study. This allows for a comprehensive examination of stock market reactions before, during, and after the announcement, facilitating an assessment of the influence of investor sentiment on market behaviour surrounding these critical events.

3.4 Model, and estimation of normal returns

In the reals of event studies various methodologies exist to estimate normal returns. For this master thesis, the market model was chosen due to its widely spread utilisation and robustness. The market model assumes a linear relationship between stock returns and market returns (Strong 1992). As elucidated by MacKinley (1997), the respective formulas applied are defined are as follows:

(1) $R_{i,t} = \alpha_i + \beta_i R_{m,t} + \epsilon_{i,t}$ (2) $E[\epsilon_{i,t}]=0$ (3) $VAR[\epsilon_{i,t}]=\sigma^2$

$\mathbf{R_{i,t}}$ = return for index i in period t $\mathbf{R_{m,t}}$ = return on the market portfolio in period t

$\boldsymbol{\alpha_i}$, $\boldsymbol{\beta_i}$,$\boldsymbol{\sigma_i^2}$ = parameters for the market model regression $\boldsymbol{\varepsilon_{i,t}}$ = disturbance term for stock i in period t

(1) Equation 1 expected return formula

(2) Equation 2 Assumpion Zero mean error

(3) Equation 3 homoscedasticity assumption

3.4.1 Characterisation, estimation, and aggregate abnormal returns

Measuring abnormal returns, which extract the stock price movement caused by any specific effect, is crucial to analyse and understand the impact of the announcement. Abnormal returns are calculated by subtracting estimated expected returns from actual returns. Cumulative abnormal returns give an indication of the total effect caused by an occurred event.

(4) $AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t})$ (5) $CAR_i = \sum_{i=1}^{n} \mathrm{AR}_{i,t}$

$AR_{i,t}$ = abnormal return at time t for index i **$R_{i,t}$ =** actual return at time t for index i

$E[R_{i,t}]$ = expected return at time t for index i **CAR_i =** cumulative abnormal return for period t for index i

(4) Equation 4 Abnormal Return Formula

(5) Equation 5 CAR formula

The chosen approach offers a well-established framework for analysing abnormal returns surrounding specified events, such as central bank interest rate announcements.

3.4.2 Testing of results for statistical significance

To test the results for statistical significance, this paper applies the t-test statistic to examine whether cumulative abnormal returns are equal to zero. Since the t-values can be interpreted as the direction of the correlation, a positive (negative) t-value will indicate a positive (negative) correlation of cumulative abnormal returns. The t-values will be compared to the corresponding critical values at a 5%, 1%, and 0.1% significance level. If the t-value exceeds the critical value, the H0 can be rejected for the corresponding critical value. To further evaluate the reliability of the model and support the results given by the t-statistics, we calculated the p-value for each merger. The following formulas are used for the estimation:

3.5 Adjust for thin trading

In this thesis, potential data challenges related to thin trading are effectively mitigated by the selection of data sources and the types of securities analysed. Specifically, this study focuses exclusively on the main stock indices from developed countries, which are known for their high

liquidity and substantial daily trading volumes. The data for market returns is sourced from the Kenneth French Data Library, a reputable and widely used resource in financial research (French, n.d.). Given the high liquidity and consistent trading volumes of the stocks included in these main indices, issues related to thin trading, such as biased return estimates and inaccurate abnormal return calculations, are not a concern in this analysis. The stocks in these indices are actively traded, ensuring that the data reflects continuous market activity without significant gaps.

Furthermore, the use of consistent and reliable market data from the Kenneth French Data Library ensures that the analysis is based on high-quality information. This choice of data sources not only supports the robustness of the study but also aligns with best practices in financial research. Therefore, the methodology does not require adjustments for thin trading, which is typically necessary when dealing with less liquid securities. Instead, the focus remains on accurately estimating and analysing normal and abnormal returns using the market model, free from the distortions that thin trading might introduce.

4 Sample and Data Gathering

4.1 Selection Criteria

In selecting the data for this thesis study, rigorous criteria were applied to ensure the reliability, relevance and comprehensiveness of the datasets utilized. This research choses specific selection criteria, which will further be discussed in the data gathering section. The following criteria were employed: To determine relevant events within the data available in the central banks databases historic interest rates were downloaded off their respective official websites. For investor sentiment, the CCI was chosen for reasons outlined above, especially consistency and comparability. Choosing an Index which is measured consistently across different regions makes the results comparable and increases robustness. For Stock data the main indices of developed economies were chosen because they best represent the stock market in these jurisdictions across industries. Data availability for the main indices is usually good and, in most cases, even publicly available. The following criteria were employed:

Data Source Reliability: The primary consideration in data selection was the reliability and authenticity of the sources. Interest rate data were sourced directly from official central bank websites, ensuring accuracy and adherence to official monetary policy announcements. This approach minimizes the risk of data inaccuracies or discrepancies that may arise from secondary sources.

Relevance to Research Objectives: All selected datasets are directly relevant to the research objectives and hypotheses outlined in the study. Interest rate data from central banks, stock market data from the main indices, and sentiment data such as the Consumer Confidence Index (CCI) from reputable sources such as OED World database provided the necessary variables for analysing the interplay between interest rate changes, investor sentiment, and stock market behaviour.

Temporal and geographical Consistency: Consistency in data collection across the selected period was a crucial criterion. The datasets were required to cover a consistent time frame to facilitate meaningful analysis and comparison. This ensured that the study captured relevant market dynamics and trends over time, allowing for robust statistical analysis and interpretation. The datasets were selected to encompass a broad geographical coverage, reflecting diverse economic regions and markets. This approach enables the study to capture variations in market responses to interest rate changes and investor sentiment across different regions and economies, enhancing the generalizability and robustness of the findings.

Data Accessibility, Availability and Quality: Accessibility and availability of the selected datasets were essential considerations. The chosen datasets were readily accessible from reputable sources such as official central bank websites for interest rate data, main indices for stock market data, and organizations like the OECD for sentiment data. This ensured ease of data acquisition and minimized potential barriers to data utilization. Quality assurance measures were implemented to ensure the integrity and accuracy of the selected datasets. This included data validation procedures to identify and mitigate any errors or inconsistencies in the data. Additionally, data cleaning techniques were applied to pre-process the datasets and remove any outliers or anomalies that could distort the analysis results.

By adhering to these rigorous data selection criteria, the study ensures the robustness and validity of the empirical analysis, facilitating meaningful insights into the relationship between interest rate changes, investor sentiment, and stock market dynamics.

5 Data Analysis

The event study methodology employed in this research utilizes the eventstudy2 command in Stata, developed by (Kaspereit 2019). This command facilitates event studies by allowing users to specify various model specifications and approaches commonly utilized in finance and related literature. These include raw returns, log returns, the market model approach, multi factor models and buy and hold abnormal returns. The flexibility of the command enables

researchers to choose the length of estimation and event window according to specific requirements of their analysis. Additionally, cumulative abnormal returns (CAR) can be calculated over up to 10 different event windows. For an outline code please refer to appendix H1 Stata code.

The data preparation process was started by collecting historical stock price data and relevant market index data from reliable sources such as WRDS/CRSP and Datastream. Additionally, interest rate change dates are gathered from central bank announcements, and investor sentiment data is sourced via the Consumer Confidence Index (CCI) from world data.

In this study the market model approach was chosen to estimate abnormal returns. To estimate normal returns, the market model, which assumes a linear relationship between stock returns and market returns, was employed. The expected returns are calculated using the formula (Equation 1):

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \epsilon_{i,t.}$$

Representations and parameters were defined as outlined in the methodology section. The chosen model calculates expected returns based on the historical relationship between the returns of the asset under study. For this research the largest stock index, and a market index for each region examined. For the market indices, the MKT factors were downloaded from the Kenneth French website (Kenneth French, n.d.).

The eventstudy2 command provides several test statistics for assessing the significance of abnormal returns. For the results analysis, the t-test assuming cross-sectional independence, as proposed by Serra (2002), was utilized. This test evaluates whether the mean abnormal return is significantly different from zero. Statistical testing involves using the t-test to examine whether the cumulative abnormal returns are significantly different from zero. This helps determine the impact of interest rate changes and investor sentiment on stock prices. The t-values and p-values are interpreted to assess the statistical significance of the results at different confidence levels.

Accounting for thin trading is not necessary in this thesis for the reasons discussed in 3.5. Also the eventstudy2 command adjusts for thin trading on a trade-to-trade basis, following the methodology suggested by Maynes and Rumsey (1993). Moreover, the command conducts a meta-analysis on data availability to identify securities or firms with insufficient observations in the estimation and/or event period. This diagnostic information is reported in the _Diagnostic file generated by the command.

As in the major fraction of financial literature this thesis data analysis was based on log returns instead of arithmetic stock returns. In the context of studying returns the term “returns” often refers to “log returns”. Log returns are defined as:

$$z_t = log(1 + r_t)$$

Equation 6 log return formula

where r_t represents the raw return at time t. There are several reasons why log returns are preferred over raw returns by researchers. Raw returns are bounded at minus one but can be infinitely positive while log returns have infinite support. This makes log returns more symmetric, as the logarithmic function suppresses large positive values while amplifying small negative values (Figure 1). Log returns tend to approximate a normal distribution, especially if prices are log normally distributed. This helps statistical analysis, as many econometric models assume normality. Additionally log returns facilitate the use of linear regression models, which rely on the assumption of normally distributed residuals. Additionally log returns usually approximate raw returns well, especially if they are close to zero. Additionally, log returns provide a more symmetric measure of returns, suppressing large positive values and amplifying small negative values, resulting in a more balanced representation of stock performance. Log returns are also additive over time, making them easier to aggregate for multi-period analyses, thereby simplifying the calculation of cumulative returns. For small returns, log returns closely approximate raw returns, ensuring that the analysis remains accurate even for minor price changes.

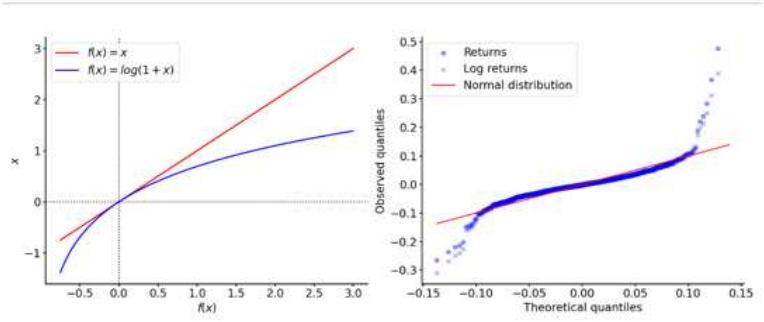

Figure 1: Illustration of Returns vs log Returns

A significant challenge in this analysis is the inconsistency between the monthly sentiment data and the daily stock data. To address this, several strategies can be implemented. One approach is to interpolate the monthly sentiment data to create daily estimates. Linear interpolation is a straightforward method, but more sophisticated techniques like spline interpolation can provide more accurate daily estimates.

The approach to aggregate the daily stock data to a monthly frequency, which aligns with the sentiment data was chosen. This was done by calculating monthly average level, thereby simplifying the data analysis process.

6 Results

6.1 Hypothesis 1

Region	CAD	CHE	EUR	GBR	JPN	US
Window						
t-20 - t+20	-0.014293***	-0.020104	0.005936	0.001706	-0.019701 *	-0.000407
t-15 - t+20	-0.013985 ***	-0.019416	0.006444	-0.000551	-0.013265	-0.000431
t-10 - t+15	-0.013347 **	-0.003465	0.005480	0.000400	-0.015447 *	-0.000590
t-10 - t+10	-0.015015 ***	-0.004257	0.006857	-0.000069	-0.010138	-0.000315
t-5 - t+15	-0.009630 **	0.001302	0.004506	0.000972	-0.012882	-0.000587
t-5 - t+10	-0.011169 **	-0.000133	0.005883	0.000720	-0.007573	-0.000312
t-5 - t+5	-0.010991 ***	-0.011924	0.002249	0.001297	-0.003524	-0.000173
t-1 - t+4	-0.004780 ***	-0.008916	0.000481	0.001145	-0.004155	-0.000090
t-1 - t+10	-0.005777 **	-0.000599	0.004535	-0.000246	-0.006930	-0.000245

Table 1 CAR`s around IR changes by region for 9 event windows

After conducting the Event study on interest rate changes, the analysis revealed no statistically significant influence of interest rate changes on aggregated share prices across regions. CAR`s around the events were mainly negative. Consequently, we cannot reject the null Hypothesis (H0) posited in our previously stated Hypothesis 1, which assumed that Central Bank announcements of interest rate changes do not significantly impact aggregate share prices in the main corresponding indices in the short term, measured by cumulated abnormal returns using the market model over the event windows. It was found that abnormal returns are not statistically different from zero across regions consistently. Significant negative abnormal returns were observed exclusively in the Canadian market across all examined event windows. This finding underscores a pronounced and consistent market reaction to Central Bank interest rate announcements, indicating a robust negative impact on share prices in Canada. The absence of similar significant effects in other examined markets highlights the unique sensitivity of the Canadian market to changes in interest rates, suggesting a distinct market dynamic influenced by regional economic factors and monetary policy considerations.

Interestingly, significant short- term abnormal returns were observed across regions around announcement dates during global crisis periods such as the financial crisis and the COVID- 19 shock. These events, often termed as black swan events, spread across markets and stand as outliers in our analysis, demonstrating consistent negative impacts on share prices across regions. This could be explained by market participants reassessing their expectations during times of crisis and react more strongly to central bank announcements. The intertwine of global markets in a globalized stock market also plays a role in collective reactions, especially out of fear and insecurity across markets as shown by (Subramaniam and Chakraborty 2021). The two mentioned events were characterized by high levels of uncertainty and disruption to economic and financial systems. Therefore, central banks felt forced to intervene quickly, in the form of interest rate changes. Compared to usual changes these adjustments were looked at as being more impactful in signalling towards the market, stabilizing it and influencing investor sentiment to a bigger extend compared to non-crisis times. Additionally central banks play a crucial role during crises by implementing fast and if necessary unconventional monetary policies to mitigate the adverse effects on the economy and financial markets. Market participants may closely scrutinize central bank actions and announcements during these times, leading to heightened sensitivity and larger market reactions. Therefore, the observed short-term abnormal returns during crisis periods suggest that market efficiency may be at least temporarily compromised, as investors react strongly to new information and are more likely to act out of fear rather than rationality to Central bank interventions aiming to navigate uncertain and turbulent market conditions. This underscores the importance of central bank communication and policy effectiveness in managing market expectations and restoring confidence during times of crisis and stresses the influence of investor sentiment.

Despite not being able to accept the H0 our examination still produced interesting implications. The mainly negative reactions of markets to Central Bank interest rate changes can be understood within the context of market insecurity. Uncertainty regarding future economic conditions surrounds the events of in interest rate changes, especially the trading days before the respective decisions, where it is usually known that a meeting is taking place. Higher interest rates may signal a Central Bank's intention to curb inflation or cool down an overheating economy, which could potentially constrain corporate earnings growth and consumer spending and vice versa. As a result, investors may become more risk-averse in uncertain economic environments, leading to downward pressure on stock prices. Therefore, the observed negative CARs underscore how market participants view insecurity as generally detrimental to stock

market performance. The varying magnitudes of market reactions across regions reflect not only differences in economic fundamentals but also that the interconnectedness of international markets is not absolute.

In today's globalized economy, markets are increasingly intertwined, with events in one region often reverberating across the globe. However, regional disparities persist due to factors such as differing monetary policy stances, regulatory environments, and levels of trust and market development. The time-sensitive nature of market reactions highlights the efficiency of financial markets in processing information and adjusting asset prices accordingly. Immediate negative reactions to Central Bank announcements of even the event of deciding on interest rates suggest that investors quickly incorporate new information into their decision-making processes and the general negative influence of insecurity on the market. However, the diminishing magnitude of CARs over longer event windows indicates that market participants may reassess and recalibrate their expectations as they gain a deeper understanding of the implications of Central Bank policy decisions.

6.1.1 By direction

Window	t-20 - t+20	t-15 - t+20	t-10 - t+15	t-10 - t+10	t-5 - t+15	t-5 - t+10	t-5 - t+5	t-1 - t+4	t-1 - t+10
Direction									
Down (0)	-0.003598	-0.003079	-0.001522	-0.000893	-0.001099	-0.000250	-0.003323	-0.000978	0.001077
	(0.2735)	(0.4066)	(0.4109)	(0.5908)	(0.5818)	(0.8229)	(0.2381)	(0.9526)	(0.3838)
Up (1)	-0.006413	-0.007010	-0.005788	-0.006841	-0.003756	-0.004898	-0.003593	-0.002703	-0.003970
	(0.0039)***	(0.0028)***	(0.0066)***	(0.0029)***	(0.0474)**	(0.0172)**	(0.0145)**	(0.0044)***	(0.0165)**

Table 2 CAR`s and (p- values) by IR movement direction across regions

It was further investigated whether categorizing abnormal returns based on the direction of interest rate movement would yield more distinct abnormal return patterns across regions. This analysis revealed notable findings over all event windows in the short term when looking only on the events where interest rates increased. Consistently significant results were observed across regions with a confidence level of 1% in the most short- term Window t-1 – t+4.

A plausible explanation for this is that interest rate hikes send a strong and immediate signal regarding future economic conditions. Central banks typically raise rates to control inflation or slow economic growth, which increases borrowing costs for businesses and consumers. This negatively impacts corporate earnings expectations and investor confidence, leading to swift market adjustments in the form of negative abnormal returns. The sharp market response reflects the clear message of tighter monetary conditions, which is rapidly incorporated into

stock prices. In contrast, interest rate cuts do not produce equally pronounced or consistent reactions. While intended to stimulate economic activity, rate cuts often carry mixed signals. Investors may view them with uncertainty, interpreting the cuts as either a positive move to boost growth or as a reaction to underlying economic weakness, which could undermine confidence. Additionally, if rate cuts are anticipated or perceived as insufficient, their impact on the market may be limited. Consequently, abnormal returns following rate decreases are less uniform and significant across regions, reflecting the ambiguity in how markets interpret such moves in the short term. These findings suggest that while rate hikes tend to trigger clear and consistent negative market responses in the short term, the effects of rate cuts are more variable and context-dependent, with regional differences playing a significant role in shaping market reactions.

6.1.2 By region and direction

	Event Window t-20 - t+25		t-15-t+25	t-15-t+20	t-10 - t+15	t-10 - t+10
Symbol	Direction					
CAD	0	-0.004365 (t=-0.66, p=0.5123)	-0.002839 (t=-0.48, p=0.6323)	-0.002839 (t=-0.48, p=0.6323)	-0.002558 (t=-0.41, p=0.6807)	-0.003530 (t=-0.63, p=0.5301)
CAD	1	-0.024727 (t=-4.03, p=0.0002)***	-0.025319 (t=-4.07, p=0.0001)***	-0.025319 (t=-4.07, p=0.0001)***	-0.024323 (t=-4.03, p=0.0002)***	-0.026695 (t=-3.89, p=0.0003)***
CHE	0	-0.034663 (t=-0.83, p=0.4260)	'-0.031160 (t=-1.10, p=0.2978)	-0.031160 (t=-1.10, p=0.2978)	-0.008055 (t=-0.64, p=0.5348)	-0.001840 (t='-0.02, p=0.9875)
CHE	1	-0.004902 (t=-0.74, p=0.4693)	-0.008939 (t=-0.88, p=0.3948)	-0.008939 (t=-0.88, p=0.3948)	0.002339 (t=-0.03, p=0.9790)	-'0.004974 (t=-0.58, p=0.5693)
EUR	0	0.003368 (t=0.37, p=0.7175)	0.004559 (t=0.49, p=0.6310)	0.004559 (t=0.49, p=0.6310)	0.001806 (t=0.22, p=0.8299)	0.003186 (t=0.43, p=0.6673)
EUR	1	0.005360 (t=0.65, p=0.5233)	0.005262 (t=0.60, p=0.5560)	0.005262 (t=0.60, p=0.5560)	0.007075 (t=1.07, p=0.2911)	0.008703 (t=1.52, p=0.1398)
GBR	0	0.005151 (t=0.74, p=0.4626)	0.001967 (t=1.20, p=0.2387)	0.001967 (t=1.20, p=0.2387)	0.005028 (t=1.36, p=0.1810)	0.004037 (t=1.77, p=0.0849)*
GBR	1	-0.002359 (t=-0.96, p=0.3441)	-0.003457 (t=-1.43, p=0.1620)	-0.003457 (t=-1.43, p=0.1620)	-0.004806 (t=-2.29, p=0.0275)**	-0.004893 (t=-2.62, p=0.0124)**
JPN	0	-0.022979 (t=-1.83, p=0.0929)*	-0.016833 (t=-1.94, p=0.0764)*	-0.016833 (t=-1.94, p=0.0764)*	-0.019974 (t=-2.39, p=0.0342)**	-0.013439 (t=-1.64, p=0.1273)
JPN	1	0.001600 (t=0.52, p=0.6960)	0.011707 (t=2.48, p=0.2436)	0.011707 (t=2.48, p=0.2436)	0.016240 (t=3.68, p=0.1688)	0.012967 (t=8.20, p=0.0772)
US	0	-0.001135 (t=-1.54, p=0.1269)	-'0.001135 (t=-1.67, p=0.0986)*	-'0.001135 (t=-1.67, p=0.0986)*	-0.001243 (t=-2.44, p=0.0174)**	-'0.000846 (t=-1.93, p=0.0571)*
US	1	0.000265 (t=0.32, p=0.7513)	0.000218 (t=0.26, p=0.7965)	0.000218 (t=0.26, p=0.7965)	0.000012 (t=0.02, p=0.9862)	0.000175 (t=0.30, p=0.7675)

Symbol	Event Window t-5 - t+15 Direction	t-5 - t+10	t-5 - t+5	t-1 - t+4	t-1 - t+10
CAD	0	-0.000699 (t=-0.31, p=0.7591)	-0.001150 (t=-0.55, p=0.5858)	-0.005021 (t=-1.04, p=0.3042)	0.000932 (t='-0.02, p=0.9878)	0.004091 (t=0.60, p=0.5497)
CAD	1	-0.019015 (t=-3.33, p=0.0015)***	-0.021689 (t=-3.43, p=0.0011)***	-0.017260 (t=-4.14, p=0.0001)***	-0.010879 (t=-3.91, p=0.0003)***	-0.016315 (t=-3.00, p=0.0041)***
CHE	0	-0.003661 (t=0.34, p=0.7444)	0.002752 (t=1.24, p=0.2425)	-0.028227 (t=-0.18, p=0.8570)	-0.019540 (t=0.46, p=0.6576)	0.004681 (t=1.64, p=0.1320)
CHE	1	0.005162 (t=0.24, p=0.8100)	-'0.002339 (t=-0.32, p=0.7528)	0.000755 (t=0.04, p=0.9717)	-'0.001908 (t=-0.53, p=0.6028)	-'0.003825 (t=-0.84, p=0.4146)
EUR	0	-0.000966 (t=-0.13, p=0.9011)	0.000413 (t=0.06, p=0.9515)	-0.003872 (t=-0.68, p=0.5020)	-0.002427 (t=-0.58, p=0.5667)	0.000457 (t=0.08, p=0.9393)
EUR	1	0.008042 (t=1.64, p=0.1104)	0.009670 (t=2.45, p=0.0204)**	0.006569 (t=1.58, p=0.1237)	0.002316 (t=0.93, p=0.3581)	0.007299 (t=2.35, p=0.0254)**
GBR	0	0.004219 (t=1.54, p=0.1316)	0.003694 (t=2.04, p=0.0484)**	0.003221 (t=2.25, p=0.0304)**	0.002389 (t=1.88, p=0.0680)*	0.001763 (t=1.64, p=0.1087)
GBR	1	-0.002762 (t=-1.72, p=0.0937)*	-0.002849 (t=-1.92, p=0.0622)*	-0.000963 (t=-0.73, p=0.4683)**	-0.000347 (t=-0.29, p=0.7770)*	-0.002657 (t=-2.08, p=0.0446)**
JPN	0	-0.016329 (t=-1.68, p=0.1184)	-0.009794 (t=-1.10, p=0.2919)	-0.005240 (t=-0.80, p=0.4409)	-0.005128 (t=-1.17, p=0.2660)	-0.008362 (t=-1.48, p=0.1648)
JPN	1	0.011247 (t=1.63, p=0.3502)	0.007974 (t=1.96, p=0.3003)	0.008490 (t=2.08, p=0.2856)	0.002660 (t=42.73, p=0.0149)	0.003095 (t=3.84, p=0.1621)
US	0	-'0.001435 (t=-3.01, p='0.0037)***	-0.001039 (t=-2.59, p=0.0115)**	-0.000652 (t=-2.12, p=0.0372)**	-'0.000180 (t=-0.91, p=0.3654)	-'0.000572 (t=-1.76, p=0.0826)*
US	1	0.000195 (t=0.33, p=0.7394)	0.000358 (t=0.74, p=0.4622)	0.000268 (t=0.88, p=0.3822)	-'0.000007 (t='-0.03, p=0.9739)	0.000056 (t=0.14, p=0.8881)

Table 3 CAR`s by region and direction

For the full results table please refer to Appendix H1(3) Like the results across regions, in Canada (CAD), the market response to interest rate increases were significantly more pronounced than to decreases. Specifically, during the window t−5 to t+5, the cumulative abnormal return statistically significant at the 1% level. This indicates that rate hikes lead to a strong negative market reaction in Canada. In contrast, when rates decreased, the market reaction was more subdued and statistically insignificant (p=0.3042).

For Switzerland (CHE), the market showed very little reaction to either direction of interest rate changes, with most windows yielding insignificant results. This suggests that the Swiss market remains largely unaffected by short-term interest rate changes, regardless of whether rates rise or fall. Also, the result may be indifferent because of the limited number of observations for Switzerland in the dataset.

In the Eurozone (EUR), rate increases produced more significant market reactions compared to rate decreases. Notably, the window t−1 to t+10 saw statistically significant CAR at the 5% level (p=0.0254). On the other hand, decreases in rates did not lead to statistically significant CARs. The muted response to rate cuts in the Eurozone contrasts with the stronger, positive response to rate hikes.

In Great Britain (GBR), the market response to rate decreases was somewhat significant. For instance, in the window t−5 to t+5, the CAR was statistically significant at the 5% level (p=0.0304). This suggests that the market reacts positively to interest rate cuts in the short term. However, the reaction to rate increases was generally weak and insignificant.

In Japan (JPN), the market responded more significantly to rate increases than decreases. For example, the CAR was not statistically significant (p=0.2856). For rate decreases, the CAR in all windows was also not significant. The lack of strong significance suggests that Japan's market is relatively less sensitive to short-term interest rate changes compared to other regions.

For the United States (USA), the market exhibited minimal reactions to both rate increases and decreases. During rate decreases, the t−5 to t+5 window produced a CAR, which was significant at the 5% level (p=0.0372). However, rate increases generated even smaller and statistically insignificant CARs. This suggests that the U.S. market is relatively insensitive to rate movements in the short term, at least in the short event windows analysed here.

Overall, the results indicate that the impact of interest rate changes on cumulative abnormal returns varies significantly across regions but are reacting to the direction of the change across regions. Canada and the Eurozone are more sensitive to rate increases, showing significant negative and positive CARs, respectively. Great Britain shows a stronger response to rate decreases, while Japan and Switzerland exhibit weaker and often statistically insignificant responses regardless of rate direction. The S&P 500 demonstrates the least sensitivity, with only minimal and mostly insignificant reactions to either rate increases or decreases.

6.2 Hypothesis 2

The second hypothesis explores the relationship between investor sentiment, measured by the Consumer Confidence Index (CCI), and stock market behaviour. Specifically, this hypothesis examines whether fluctuations in CCI correlate with changes in cumulative abnormal returns (CARs) around key event dates. The analysis was conducted across various countries; a range of correlation coefficients and associated p-values are reported.

The results are shown in Tables below, with significance levels indicated by * ($p < 0.10$), ** ($p < 0.05$), and *** ($p < 0.01$).

	Event Windows		All Market	
Country/ Region	Correlation Coefficient	p- Value	Correlation Coefficient	p- Value
Switzerland (CHE)	0,0931	0,6122	0,3095	0***
Japan (JPN)	0,636	0,0081***	0,1288	0,0039***
United States (US)	0,0284	0,6899	-0,1075	0,0035***
Canada (CAD)	-0,0798	0,3823	0,0465	0,2838
European Union (EU)	0,24562481	0,0608*	-0,1926	0,001***
United Kingdom (UK)	0,0764	0,4795	-0,0048	0,919

Table 4 Coreellation Cofficients and significance indicators

The correlation results for both the entire market period (1980–2023) and specific event windows show distinct differences across regions, reflecting how investor sentiment, as measured by the Consumer Confidence Index (CCI), affects stock market behaviour. The analysis across the event windows yielded significant results in Japan ($p < 0.01$) and the European Union ($p < 0.10$). This means that investor sentiment plays a significant role in stock market behaviour in these regions, particularly in Japan. Other regions, including the United States, United Kingdom, Switzerland, and Canada, showed weak or non-significant correlations, indicating a less pronounced relationship between CCI and CARs around the events of interest.

Meanwhile the results across time are showing increased significance. In all examined regions except Canada and the UK the corelation is significant at the 1% level. The hypothesis is partially supported, particularly in Japan and the European Union, where significant relationships were found between CCI and stock market behaviour. However, in regions such as the United States, Canada, Switzerland, and the United Kingdom, the hypothesis is largely refuted, as the correlations are weak or non-significant. Therefore, the null hypothesis (H0) cannot be rejected because no consistent significant results across regions were found in the analysis.

6.3 Hypothesis 3

The third hypothesis proposes that the combined effect of interest rate direction and investor sentiment has a significant impact on abnormal stock market returns across various regions. Specifically, it suggests that cumulative abnormal returns (CARs) will follow distinct patterns, depending on the interaction between interest rate changes and Consumer Confidence Index

(CCI) values. To investigate this, a regression analysis was conducted using the market model across several event windows. The Consumer Confidence Index (CCI) served as a measure of investor sentiment, while the direction of interest rate changes was represented as a dummy variable (0 for decreases, 1 for increases). CARs were calculated over nine event windows to capture stock market reactions around central bank announcements. The analysis spanned multiple regions, including Canada, Switzerland, the European Union, Japan, the United Kingdom, and the United States. Additionally, to gain more precise insights, the analysis differentiated between interest rate increases and decreases. This allowed for a clearer understanding of how investor sentiment interacts with each type of rate movement and its effects on investor behaviour in different regions and time periods.

6.3.1 Observation across regions

The analysis across all regions revealed significant insights into how consumer confidence and interest rate movements impact abnormal returns. The regression results for each event window across regions are summarized in the table below: Special emphasis is placed on smaller event windows closer around the event dates due to their relevance in capturing immediate market reactions. The combined result is aggregated across regions. The event windows are defined as follows:

Event Window	CCI Coefficient (p-value)
t-20 - t+20	0.0008454 (0.377)
t-15 - t+20	0.0007662 (0.420)
t-10 - t+15	0.0007687 (0.352)
t-10 - t+10	0.0008715 (0.287
t-5 - t+15	0.0006913 (0.363)
t-5 - t+10	0.0007588 (0.306)
t-5 - t+5	0.0009662 (0.138)
t-1 - t+4	0.0005726 (0.163)
t-1 - t+10	0.0004281 (0.443

Table 5 CCI Coefficienst and (p-values) across regions

Findings:

Across all event windows, the CCI coefficient remains insignificant but generally positive, indicating that investor sentiment, as measured by CCI, does not have a strong or consistent impact on abnormal returns. It can be observed that for smaller windows around the event dates, the p- values get smaller indicating a rise in significance, hence the p-values consistently show

no statistical significance at common thresholds, even 10% levels are not met, meaning that changes in CCI do not seem to be a reliable predictor of abnormal stock market returns during these event windows.

6.3.2 Observation by Region

To understand the regional differences in the impact of interest rate movements and investor sentiment, we conducted separate analyses for each region. The table below summarizes the results for each region across all event windows when the direction of interest rates changed negatively (0). The analysis across all regions revealed significant insights into how consumer confidence and interest rate movements impact abnormal returns. The regression results for each event window are summarized in the table below:

Event Window	t-20 - t+20	t-15-t+20	t-10 - t+15	t-10 - t+10	t-5 - t+15	t-5 - t+10	t-5 - t+5	t-1 - t+4	t-1 - t+10
Region									
CAD	-0.0653	-0.0613	-0.1522	-0.1991	-0.0374	-0.0860	-0.0935	0.0897	0.0120
	(0.8360)	(0.8460)	(0.5960)	(0.5090)	(0.8870)	(0.7540)	(0.6860)	(0.4300)	(0.9520)
CHE	-0.2216	-0.2448	-0.1475	-0.0394	-0.1955	-0.0496	-0.2561	-0.1969	0.0784
	(0.6460)	(0.5810)	(0.6740)	(0.8960)	(0.6050)	(0.8750)	(0.4800)	(0.5740)	(0.7880)
EUR	-0.0646	-0.0330	-0.0561	-0.0749	-0.1809	-0.1996	-0.2807	-0.2413	-0.1486
	(0.8330)	(0.9180)	(0.8270)	(0.7390)	(0.4070)	(0.2830)	(0.0990)*	(0.0340)**	(0.3470)
JPN	-1.3652	-1.1066	-1.3133	-1.1363	-1.1697	-0.9927	-0.6046	-0.6861	-0.8571
	(0.0210)**	(0.0280)**	(0.0060)***	(0.0160)**	(0.0420)**	(0.0700)*	(0.1610)	(0.0050)***	(0.0100)**
UK	0.0109	0.0082	0.0416	0.0195	0.0471	0.0270	0.0109	-0.0188	-0.0135
	(0.8910)	(0.9070)	(0.5420)	(0.7520)	(0.3850)	(0.5780)	(0.7610)	(0.5040)	(0.7400)
US	-0.0523	-0.0576	-0.0275	-0.0411	-0.0270	-0.0405	-0.0293	-0.0117	-0.0216
	(0.1230)	(0.0820)*	(0.3010)	(0.0680)*	(0.2490)	(0.0370)**	(0.0270)**	(0.1890)	(0.1720)

Table 6 øCAR`s and (p-values) by region

Across all event windows, Canada showed insignificant results, with the p-values well above any threshold for significance. The CCI's impact on abnormal returns was marginal, and there was no significant evidence of a relationship between investor sentiment and abnormal returns following interest rate decreases in the Canadian stock market. Similarly, the results for Switzerland also indicate no significant relationship between interest rate movements and abnormal returns during the event windows. CCI did not have a statistically significant influence on returns.

The European market saw more varied results, with some event windows (t-1 – t+4) showing significant findings at the 5% level. This indicates that, at least in certain windows, investor sentiment and interest rate changes may play a role in driving abnormal returns. Japan consistently showed significant negative abnormal returns across nearly all event windows,

indicating a strong and significant negative relationship between interest rate decreases, investor sentiment, and abnormal returns in the Japanese stock market. Several windows had p-values below 0.05, indicating significant findings.

The UK showed no significant abnormal returns across all event windows, with p-values well above the significance thresholds. This suggests that the combination of investor sentiment and interest rate decreases did not have a material impact on abnormal returns in the UK market.

The US market demonstrated some significant results, the CCI was found to have a statistically significant relationship with abnormal returns following interest rate decreases in multiple windows. This indicates that investor sentiment plays a role in influencing short-term market reactions during these event windows.

Japan shows the most consistent significant negative abnormal returns, indicating that investor sentiment combined with interest rate decreases has a substantial impact on its stock market. The US also reveals some significant findings, particularly in smaller event windows. Europe shows mixed results, with some significant findings in EW8, while Canada, Switzerland, and the UK showed no significant relationship across the event windows analyzed.

6.3.3. Analysis by Region and Direction

	Event window	-5,10	-5,5	-3,4	-1,4	-1,10
Region	**Direction**					
US	Down	0.142*	0.187*	0.199*	0.149	0.135
US	Up	0.040	0.147	0.133	0.060	0.104
Japan	Down	0.451***	0.427***	0.340**	0.686***	0.604***
Japan	Up	0.150	-0.249*	0.220	0.137	-0.687***
EU	Down	-0.022	0.020	0.106	0.155	0.054
EU	Up	0.251*	0.282**	0.319**	0.443***	0.210*
UK	Down	-0.026	0.034	0.046	0.070	0.079
UK	Up	-0.045	-0.039	0.017	0.287*	0.160*
Canada	Down	-0.118	-0.064	-0.048	-0.099	-0.081
Canada	Up	0.244*	0.210*	0.197	-0.046	0.121
CHE	Down	0.105	-0.261*	0.045	0.168	-0.093
CHE	Up	0.096	0.243*	0.122	-0.035	0.019

Table 7øCAR`s by region and IR direction – stars indicating significance (p<0,1; **p<0,05; *** p<0,01)*

Japan exhibited the strongest relationship between CCI and CARs, particularly during interest rate decreases (Down). Significant positive correlations were observed across all event windows, with the strongest correlation found in the -1,4 window ($r = 0.686^{***}$, $p < 0.01$). This suggests a strong relationship between investor sentiment and stock market behaviour during

periods of declining interest rates in Japan. For interest rate increases (Up), the relationship was mixed, with a significant negative correlation of r = -0.687*** in the -1,10 window, indicating an inverse relationship during periods of rising interest rates.

The European Union (EU) also showed significant positive correlations during interest rate increases, particularly in the -1,4 window (r = 0.443***, p < 0.01) and -5,5 window (r = 0.282**, p < 0.05), indicating that investor sentiment significantly impacts stock market behaviour when interest rates rise. However, during interest rate decreases, the relationship was weak and non-significant.

In the United States (US), there were modest but significant correlations during interest rate decreases, with the -5,5 window showing r = 0.187 (p < 0.10)* and the -3,4 window showing *r = 0.199 (p < 0.10)**. This suggests that changes in investor sentiment may moderately influence stock market behaviour during periods of falling interest rates. In contrast, no significant correlations were found during interest rate increases.

Canada displayed a weak positive correlation for interest rate increases, with the -5,10 window showing *r = 0.244 (p < 0.10)**. For interest rate decreases, correlations were negative and insignificant, suggesting little relationship between CCI and CARs.

The United Kingdom (UK) showed limited significant relationships. A moderate positive correlation was found in the -1,4 window for interest rate increases (*r = 0.287 (p < 0.10)**), suggesting that investor sentiment might influence stock market behaviour in the UK during rising interest rates. No significant relationships were found during interest rate decreases.

Switzerland (CHE) showed weak correlations overall, with a significant negative correlation in the -5,5 window for interest rate decreases (*r = -0.261 (p < 0.10)**). This suggests a potential inverse relationship between investor sentiment and stock market behaviour in Switzerland when interest rates fall.

The results partially support the hypothesis, showing that fluctuations in Consumer Confidence Index (CCI) correlate with changes in Cumulative Abnormal Returns (CARs), particularly in Japan and the European Union when controlled for interest rate direction. But the H0 cannot be rejected across regions since the results are not holding for all examined economic zones. The relationship is strongest during interest rate decreases, where Japan consistently exhibited highly significant correlations across all event windows. The European Union also showed significant positive correlations, primarily during interest rate increases. On the other hand, regions such as Canada, the United Kingdom, and Switzerland showed weaker or inconsistent relationships, with fewer significant results. The findings suggest that the relationship between

investor sentiment and stock market behaviour is both region-specific and influenced by the direction of interest rate changes.

A notable limitation of this analysis lies in the use of monthly sentiment data. Monthly CCI scores may not capture the full spectrum of sentiment fluctuations that occur within shorter time frames, such as daily or weekly intervals. This limitation could potentially mask or dilute the true relationship between investor sentiment and stock market behaviour, especially around the specific announcement dates of interest. Therefore, the monthly nature of the sentiment data might have impacted the sensitivity and granularity of the analysis, potentially affecting the observed correlations.

Overall, while distinct patterns are observed in some cases, the hypothesis is only partially supported, emphasizing the complexity and regional variability in the relationship between interest rate changes, investor sentiment, and short-term market reactions.

6.4 Hypothesis 4

The analysis of abnormal returns across different industries, classified by SIC codes, in response to interest rate changes and Consumer Confidence values yielded significant insights: The findings suggest that reactions to monetary policy are not uniform across industries and are highly dependent on the sectors. The results demonstrate that some sectors are more reactive to interest rate changes, while others show more moderate or delayed responses.

To see the full results please refer to Appendix H4 (3) by SIC symbol; For the SIC code classification list refer to Appendix H4 (1).

6.4.1 By SIC Group

(1) Agriculture, Forestry, and Fishing

The agriculture sector showed a significant and consistent negative reaction to interest rate changes. Across all tested windows, the abnormal returns were significantly negative, with particularly strong reactions, being significant at the 1% level in the windows of major interest smallest around the event

t-5 to t+10 with a T-stat of 3,2688 and p- value = 0.0018

t-5 to t+5 with a T-stat of 4.2441, and p- value = 0.0001

t-1 to t+4 with a T-stat of 4.8013 and p- value < 0.0000

t-1 to t+10 with a T-stat of 3.4531 and p- value < 0.001

These findings suggest that this sector is highly sensitive to changes in interest rates in the short term across regions, likely due to its capital-intensive nature, reliance on credit for operations, and fluctuating consumer demand. The combination of interest rate hikes and CCI shifts appears to amplify the negative impact on this sector. The findings are further supported by the consistent statistical significance ($p < 0.05$) across windows, confirming that agriculture is disproportionately affected by monetary policy changes.

(2) Mining

The mining industry displayed significant abnormal returns at the 5% level in the broader windows:

t-20 to t+20 with a T-stat of 2.0351 and p- value = 0.0437

t-10 to t+15 with a T-stat of 2.1745 and p- value = 0.0313

signalling a later to no adjustment to moving interest rates. However, as the analysis progressed decreasing the window size, the sector's response diminished, indicating a more transient reaction to monetary policy announcements. This suggests that while mining is generally showing negative reactions to interest rate changes regardless of the direction of change, the effects are not statistically significant across regions, potentially due to external factors like global commodity prices and longer-term contracts that mitigate the immediate impact of rate changes.

(3) Construction

The construction sector demonstrated a significantly negative response to interest rate changes, particularly in the middle windows accounting for the 5 trading days before the interest rate change being significant at the 5% level across regions.

t-5 to t+15 with a T-stat of 2.3417 and p- value = 0.0206

t-5 to t+10 with a T-stat of 2.1231 and p- value = 0.0354

t-5 to t+5 with a T-stat of 2.5236 and p- value = 0.0127

The CAR analysis displayed significant negative abnormal returns, which is consistent with the sector's sensitivity to borrowing costs. As construction is heavily reliant on financing, any

increase in interest rates would raise the cost of capital, directly affecting profitability and growth prospects. The significant results support the notion that construction reacts strongly to interest rate changes even in anticipation of changes.

(4) Manufacturing

Manufacturing showed largely insignificant reactions to interest rate changes across all windows. Although there were consistently negative responses to the direction of interest rate changes none of the examined windows reached statistical significance, suggesting that this sector may be less impacted by interest rate changes in the short term and is mainly reacting in line with the stock market. This could be due to the sector's diverse product offerings and global market reach, which might provide resilience to domestic interest rate fluctuations.

(5) Transportation, Communications, Electric, Gas, and Sanitary Services

Like the manufacturing sector, the transportation and utilities sector displayed relatively weak reactions to interest rate changes, with only marginal significance at the 10% level:

t-5 to t+5 with a T-stat of 1.7168 and p- value = 0.0882

This indicates that while there may be some short-term sensitivity to monetary policy, the sector overall appears resilient to interest rate changes, possibly due to the essential nature of its services and regulated pricing structures that buffer against macroeconomic fluctuations. Although there were consistently negative responses to the direction of interest rate changes none of the examined windows reached statistical significance.

(6) Wholesale Trade

Wholesale trade exhibited no significant abnormal returns in response to interest rate changes across all windows. The p-values remained well above significance thresholds, indicating that this sector is largely unaffected by short-term interest rate changes. The absence of significant abnormal returns may reflect the sector's ability to pass on costs or absorb changes in financing conditions without significant impacts on market valuation. Interestingly the study resulted consistentl positive responses to the direction of interest rate changes across regions.

(7) Retail Trade

The retail trade sector displayed mixed results, with significant abnormal returns at the 5% level emerging only in the window reaching from

t-5 to t+5 with a T-stat of 2.0601 and p- value = 0.0412

This suggests that retail is somewhat sensitive to interest rate changes, though not consistently significant across all examined windows. Given the consumer-driven nature of this sector, it is possible that interest rate changes impact consumer spending patterns, which in turn affect retail sales and market performance. However, the mixed significance across windows indicates that other factors, such as consumer confidence, employment rates, and disposable income, may play a larger role in determining retail sector performance. Also, adjustments could take longer time to develop rather than being priced into the stocks in the short term. The study resulted consistently negative responses in stock levels to the direction of interest rate changes across regions and examined windows while not reaching statistical significance other than the window mentioned above.

(8) Finance, Insurance, and Real Estate

The finance, insurance, and real estate sector exhibited strong and consistent reactions to interest rate changes across multiple windows closely around interest rate changes around the significance level of 1%: From

t-5 to t+10 with a T-stat of 2.6324 *and p- value* = 0.0094
t-5 to t+5 with a T-stat of 4.2441, and p- value = 0.0104
t-1 to t+4 with a T-stat of 4.8013 and p- value = 0.0032
t-1 to t+10 with a T-stat of 2.5013 *and p- value* = 0.0135

the abnormal returns showed significant negative reaction to the changes in interest rates across regions. This is not surprising given the direct link between interest rates and the cost of capital, lending rates, and asset valuation in this sector. As interest rates rise, borrowing becomes more expensive, which can negatively impact real estate values, insurance premiums, and financial services profitability. The consistent significance across windows indicates that this sector is highly sensitive to monetary policy changes, reinforcing its close connection to broader economic and financial market conditions.

(9) Services

The services sector showed no significant reaction to interest rate changes across all windows. The p-values remained high, suggesting that this sector may be insulated from short-term monetary policy changes or that the sector's diversity blurs any significant trends in reaction to interest rates. Given that the services sector includes a wide range of industries (from hospitality to professional services), it is likely that different components of this sector react differently to interest rate changes, resulting in an overall muted response. Interestingly the CAR`s across regions were consistently negative regardless of the direction of the interest rate change.

(10) Public Administration

Public administration did not show any significant abnormal returns in response to interest rate changes. The p-values across all windows were consistently high, which is expected given that this sector is not directly exposed to market forces in the same way as private industries. Public administration tends to be funded by government budgets, which are generally less sensitive to short-term interest rate changes, thus explaining the lack of significant market reaction. Interestingly the CAR`s across regions were consistently negative regardless of the direction of the interest rate change.

Key Observations

Significant Sectors: Agriculture, Construction, and Finance, Insurance, and Real Estate showed the strongest short-term reactions to interest rate changes, with significant negative abnormal returns in multiple windows.

Mixed Reactions: Sectors like Retail and Transportation showed some sensitivity to interest rate changes, but the significance was limited to specific windows.

Resilient or Insulated Sectors: Sectors like Wholesale Trade, Services, and Public Administration displayed little to no significant reactions to interest rate changes, suggesting these industries are less impacted by short-term monetary policy shifts.

Timing Matters: The reaction to interest rate changes was most pronounced in windows closer to the announcement dates, with some sectors continuing to show effects into broader windows, particularly in finance and agriculture. Thes results reinforce the importance of conducting industry-specific analysis when evaluating the impact of monetary policy from all angles. The findings suggest that while some sectors react strongly to interest rate changes, others are more resilient or influenced by other factors such as consumer confidence or long-term economic trends.

Overall, the null hypothesis (H0) can be rejected for several key sectors (Agriculture, Construction, Finance, Insurance, and Real Estate) that showed significant and consistent reactions to interest rate changes in multiple windows. The observed patterns of abnormal returns in these sectors are not random and are attributable to the interaction between interest rate changes and CCI values. However, for some sectors like Wholesale Trade, Services, and Public Administration, the lack of significant reactions supports the null hypothesis, suggesting that these industries may be more resilient to short-term interest rate changes and influenced by other factors.

7. Discussion and Interpretation

The findings from Hypothesis 1, particularly in regions like Canada and the European Union, align to some extent with the semi-strong form of the EMH, as significant CARs were observed following interest rate increases which asserts that publicly available information should be rapidly reflected in stock prices. However, the consistent presence of significant abnormal returns suggests that the market might not always fully incorporate such information immediately, indicating short-term inefficiencies. These findings imply that while the EMH holds in certain contexts, its assumptions are challenged, particularly regarding the speed and accuracy of market adjustments to new information.

The second Hypothesis focused on the relationship between investor sentiment, as measured by the Consumer Confidence Index (CCI), and stock market behaviour. The results show that this relationship varies across regions. For example, significant correlations between CCI and CARs were identified in Japan and the European Union, suggesting that in these regions, shifts in investor sentiment significantly influence market behaviour. These findings resonate with behavioural finance theories, which argue that investor psychology and sentiment often drive market movements, sometimes leading to irrational outcomes. This observation contrasts with the EMH's assumption that markets operate entirely on rationality and efficiently process all available information. The influence of sentiment, especially in markets like Japan, underscores the need to incorporate psychological factors when analysing stock price movements.

Hypothesis 3 explored the combined effect of interest rate direction and investor sentiment on stock market reactions. The results are mixed. While significant relationships were found in regions like Japan and the EU during periods of declining interest rates, other areas showed weaker connections. The interplay between rising interest rates and sentiment did not produce consistently strong results, indicating that this relationship is not uniform across all conditions.

These mixed outcomes suggest that market behavior is shaped by a complex combination of factors, challenging the EMH's claim of fully efficient markets. The findings highlight that investor sentiment and macroeconomic variables like interest rates jointly influence stock prices, but the strength of this relationship varies depending on regional and economic contexts. Hypothesis 4 delves into how specific industries react to combinations of interest rate changes and investor sentiment. Industries such as finance, agriculture, and construction were found to be particularly sensitive to interest rate increases, displaying significant negative abnormal returns in short-term windows. These results suggest that capital-intensive sectors, which are more reliant on borrowing conditions, are disproportionately affected by changes in monetary policy. While the semi-strong form of the EMH posits that market prices should quickly reflect public information, these findings suggest that responses to interest rate changes can vary significantly by sector, revealing inefficiencies in how this information is incorporated across industries. The nuanced sectoral differences highlight the importance of analysing individual industries rather than relying solely on aggregate market indices.

The results of this thesis are consistent with prior studies that identified short-term market reactions to central bank announcements and shifts in investor sentiment. However, this study adds complexity by showing how these effects differ across regions and sectors. While previous research supports the general efficiency of markets, this thesis reveals that short-term inefficiencies persist, particularly in specific contexts such as during economic crises or in sentiment-driven markets. These findings also support behavioural finance perspectives, which argue that psychological factors play a more significant role in market movements than the EMH suggests. The observed regional and sectoral differences underline the need to blend traditional economic models with behavioural insights when analysing market behaviour.

The analysis of industry-specific data reveals that certain sectors exhibit identifiable patterns in response to interest rate changes, which are not apparent in aggregate data. This finding underscores the importance of disaggregating data to understand sectoral sensitivities to monetary policy. For instance, industries such as Mining and Construction show clear positive responses to interest rate decreases, reflecting their dependence on financing conditions. Conversely, sectors like Finance, Insurance, and Real Estate exhibit negative reactions to interest rate increases, likely due to the direct impact on borrowing costs and financial market dynamics. These patterns highlight the nuanced ways in which different sectors react to macroeconomic policy changes. Investors and policymakers should take these differences into account when making decisions. The results also suggest that while aggregate indices may mask underlying sector-specific reactions, a more detailed industry-level analysis can provide

valuable insights into market behaviour around central bank announcements. Future research could further explore the factors driving these sectoral differences, such as the specific economic roles of each industry, their capital structure, and their sensitivity to changes in the economic environment. Understanding these dynamics can help in formulating more effective investment strategies and policy responses.

The findings support some aspects of the EMH, particularly in the long run, but also challenge it by highlighting short-term inefficiencies. Significant abnormal returns, especially in response to central bank announcements and investor sentiment shifts, point to a more complex and dynamic market environment than the EMH fully accounts for. This suggests that a broader understanding of market behaviour is needed—one that considers both traditional economic factors and the influence of human psychology.

8. Conclusion and future Research

This thesis aimed to explore the intricate relationships between stock market reactions, central bank interest rate changes, and investor sentiment across various regions and industries. Through a detailed event study methodology, the study tested four hypotheses concerning the impact of these factors on short-term stock market behaviour.

8.1 Conclusion

The findings from this study offer several important insights:

Varying Impact of Central Bank Interest Rate Announcements: The study found that central bank announcements of interest rate changes did not consistently produce significant abnormal returns across the studied regions. Notably, Canada exhibited a pronounced sensitivity, likely reflecting its economic structure and the Bank of Canada's approach to balancing inflation control with economic growth. In contrast, other regions, including the US, UK, Japan, and the Eurozone, showed more muted reactions, suggesting that the impact of interest rate changes on stock markets is influenced by the specific economic contexts and policy frameworks of these regions.

Role of Investor Sentiment: The influence of investor sentiment, measured by the Consumer Confidence Index (CCI), on stock market behaviour varied significantly across regions. Japan showed a strong positive correlation between CCI and cumulative abnormal returns (CARs), highlighting the critical role of sentiment in a market shaped by prolonged deflationary pressures and unconventional monetary policies by the Bank of Japan. The European Union also showed some correlation, but the relationship was weaker, likely due to the European

Central Bank's (ECB) narrow focus on price stability across diverse economies with varying inflation dynamics.

Combined Effects of Interest Rates and Sentiment: While investor sentiment and interest rates individually impacted stock market reactions, their combined effect was less consistent across regions. This finding suggests that the interplay between these factors is complex and highly dependent on the specific mandates and economic environments of the respective central banks. For instance, the Federal Reserve's dual mandate allows for more flexibility in adjusting interest rates to balance economic growth and inflation, which could explain the more varied market reactions in the US. To accurately explain market reactions more Factors like employment and economic Growth must be considered in further analysis.

Industry-Specific Sensitivities: The industry-specific analysis revealed that certain sectors are more sensitive to interest rate changes, particularly in economies like Canada and Switzerland. For example, the Swiss National Bank's (SNB) interest rate decisions, often influenced by currency considerations due to Switzerland's small, open economy, have significant implications for industries reliant on exports. Similarly, sectors like Mining and Construction in Canada responded positively to interest rate decreases, reflecting their dependence on favourable financing conditions. These findings contribute to a deeper understanding of how different economic contexts, institutional mandates, and market structures influence the relationship between central bank policies and stock market behaviour. This research provides valuable insights that can benefit various market participants, including investors, central bankers, and academic researchers, in the following ways:

1. Investors

Informed Decision-Making: The research highlights the nuanced effects of interest rate changes and investor sentiment on stock market behaviour. By understanding that these factors do not uniformly impact all markets and industries, investors can make more informed decisions about portfolio allocation, particularly during periods of monetary policy changes.

Sector-Specific Strategies: The findings emphasize that certain industries, such as Mining and Construction, react more strongly to interest rate changes. Investors can use this information to develop sector-specific investment strategies, particularly during periods of expected interest rate movements, to potentially enhance returns or mitigate risks. Regional Market Insights: The significant regional differences uncovered in the study, especially the strong influence of investor sentiment in Japan, provide investors with insights into how markets in different regions might respond to central bank policies. This knowledge can guide investors in

diversifying their portfolios across regions based on expected monetary policy actions and local investor sentiment trends.

2. Central Bankers

Policy Impact Assessment: For central bankers, the research offers a deeper understanding of how their interest rate decisions influence stock markets in the short term in their respective regions and across economic sectors. This can help central bankers anticipate market reactions and manage communication strategies to minimize potential market disruptions.

Crisis Management: The study's findings on the heightened sensitivity of markets to interest rate changes during global crises highlight the importance of timely and well-communicated interventions during such periods. Central bankers can use this insight to design more effective monetary policies that stabilize markets during times of uncertainty.

Investor Sentiment Consideration: The research underscores the importance of investor sentiment in influencing market reactions. Central banks might consider incorporating sentiment analysis into their decision-making process to better gauge market expectations and the potential impact of their policy announcements.

3. Academia

Expanding Literature: The research contributes to the academic literature by providing empirical evidence on the interplay between interest rates, investor sentiment, and stock market behaviour across different regions and sectors. It challenges existing assumptions about the uniformity of these effects and opens new avenues for academic inquiry.

Methodological Contribution: By employing event study methodology and exploring both aggregate and industry-specific data, the research provides a robust framework that can be used or adapted by other researchers in future studies. The insights into the limitations of monthly sentiment data and the importance of regional and sectoral analysis offer valuable considerations for refining research methodologies.

8.2 Future Research

While this thesis has provided valuable insights, it also highlights several areas for further investigation: Granular Analysis of Investor Sentiment: Future research could benefit from utilizing more granular sentiment data, such as daily or weekly measures, to capture short-term fluctuations in investor sentiment more accurately around specific events. This would help clarify the immediate impacts of sentiment on market behaviour, especially in regions like Japan, where sentiment appears to play a crucial role.

Exploring Regional Differences in Central Bank Policies: The significant differences observed between regions underscore the need for further exploration of the factors driving these disparities. Future studies could delve into how central banks' mandates and economic conditions, such as the Federal Reserve's dual mandate versus the European Central Bank's focus on price stability, shape market reactions to interest rate changes. Additionally, the unique challenges faced by the Swiss National Bank and the Bank of Japan due to their specific economic environments warrant further examination.

Sectoral Analysis Across Different Economic Phases: Given the sensitivity of certain industries to interest rate changes observed in this study, future research could extend this analysis to different economic phases, such as periods of economic expansion versus recession. Understanding how these phases influence sectoral responses could provide deeper insights into the cyclical nature of industries and their relationship with monetary policy.

Impact of Other Macroeconomic Variables: While this study focused on interest rates and investor sentiment, other macroeconomic variables, such as exchange rates, inflation, and fiscal policy, also significantly influence stock market behaviour. Future research could incorporate these variables to develop a more comprehensive understanding of the factors that drive market reactions, particularly in regions where central banks, like the SNB and BoJ, must navigate complex economic landscapes. Long-Term Effects and Market Efficiency: This thesis primarily focused on short-term market reactions. Future research could explore whether the patterns identified in this study persist over longer time horizons and how they relate to broader concepts of market efficiency. Additionally, examining the long-term implications of unconventional monetary policies, such as those employed by the BoJ, could provide valuable insights into the sustainability and effectiveness of these strategies.

Concluding, this thesis has enhanced the overall understanding of the dynamic interplay between interest rate changes, investor sentiment, and stock market reactions. The findings underscore the complexity of financial markets and the significant influence of regional economic contexts and central bank mandates on market behaviour. However, the results also highlight the need for continued research to fully unravel these relationships and guide both academic inquiry and practical policymaking in the future.

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List of Abbreviations

Abbreviation	Definition
AR	Abnormal Return
APT	Arbitrage Pricing Theory
BoC	Bank of Canada
BoE	Bank of England
BoJ	Bank of Japan
CAD	Canada
CAR	Cumulative Abnormal Return
CAPM	Capital Asset Pricing Model
CCI	Consumer Confidence Index
CHE	Switzerland
CPI	Consumer Price Index
CRSP	Center for Research in Security Prices
EPU	Economic Policy Uncertainty
ECB	European Central Bank

Abbreviation	Definition
EUR	Eurozone/European Union
EW	Event Window
FED	Federal Reserve (USA)
FOMC	Federal Open Market Committee
FTSE	Financial Times Stock Exchange (UK)
GDP	Gross Domestic Product
GFC	Global Financial Crisis
JPN	Japan
MKT	Market Factor
NASDAQ	National Association of Securities Dealers Automated Quotations (USA)
NIKKEI	Nikkei 225 (Japanese Stock Index)
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
S&P 500	Standard & Poor's 500 Index (USA)
SIC	Standard Industrial Classification
SNB	Swiss National Bank
SPX	S&P 500 Index (common ticker for S&P 500)
TSX	Toronto Stock Exchange (Canada)
UK	United Kingdom
US	United States
WACC	Weighted Average Cost of Capital
WRDS	Wharton Research Data Services

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Appendix

H1 Stata Code

```
cd "/Users/max/Desktop/Thesis/code/Indeces/US"
use "event.dta",clear
eventstudy2 symbol date using securitylri, returns (ri) model(FM) marketfile(factors) marketreturn(MKT) eswlb(-120)eswub(-11) log replace car1LB(-20) car1UB(25) car2LB(-15) car2UB(25) car3LB(-15) car3UB(20) car4LB(-10) car4UB(15) car5LB(-10) car5UB(10) car6LB(-5) car6UB(15) car7LB(-5) car7UB(10) car8LB(-5) car8UB(5) car9LB(-1) car9UB(4) car10LB(-1) car10UB(10)H1 (1)
```

→ over +20 is not possible so reduced to 9 windows
example for US - changed by region

H1(1)

Symbol	CAD	CHE	EUR	GBR	JPN	US
t-20 - t+25	-0.014293 (t=-2.82, p=0.0056) ***	-0.020104 (t=-1.13, p=0.2683)	0.005936 (t=0.72, p=0.4715)	0.001706 (t=0.05, p=0.9638)	-0.019701 (t=-1.78, p=0.0971) *	-0.000407 (t=-0.73, p=0.4684)
t-15 - t+25	-0.013985 (t=-2.75, p=0.0070) ***	-0.019416 (t=-1.42, p=0.1667)	0.006444 (t=0.77, p=0.4421)	-0.000551 (t=0.09, p=0.9267)	-0.013265 (t=-1.68, p=0.1151)	-0.000431 (t=-0.79, p=0.4318)
t-15 - t+20	-0.013985 (t=-2.75, p=0.0070) ***	-0.019416 (t=-1.42, p=0.1667)	0.006444 (t=0.77, p=0.4421)	-0.000551 (t=0.09, p=0.9267)	-0.013265 (t=-1.68, p=0.1151)	-0.000431 (t=-0.79, p=0.4318)
t-10 - t+15	-0.013347 (t=-2.55, p=0.0120) **	-0.003465 (t=-0.48, p=0.6377)	0.005480 (t=0.89, p=0.3776)	0.000400 (t=-0.19, p=0.8484)	-0.015447 (t=-1.97, p=0.0696) *	-0.000590 (t=-1.35, p=0.1806)
t-10 - t+10	-0.015015 (t=-2.92, p=0.0043) ***	-0.004257 (t=-0.42, p=0.6785)	0.006857 (t=1.35, p=0.1838)	-0.000069 (t=-0.08, p=0.9351)	-0.010138 (t=-1.37, p=0.1909)	-0.000315 (t=-0.85, p=0.3995)
t-5 - t+15	-0.009630 (t=-2.17, p=0.0323) **	0.001302 (t=0.42, p=0.6780)	0.004506 (t=0.87, p=0.3891)	0.000972 (t=0.42, p=0.6733)	-0.012882 (t=-1.48, p=0.1610)	-0.000587 (t=-1.52, p=0.1295)
t-5 - t+10	-0.011169 (t=-2.61, p=0.0102) **	-0.000133 (t=0.65, p=0.5213)	0.005883 (t=1.41, p=0.1632)	0.000720 (t=0.65, p=0.5154)	-0.007573 (t=-0.98, p=0.3443)	-0.000312 (t=-0.97, p=0.3321)
t-5 - t+10	-0.011169 (t=-2.61, p=0.0102) **	-0.000133 (t=0.65, p=0.5213)	0.005883 (t=1.41, p=0.1632)	0.000720 (t=0.65, p=0.5154)	-0.007573 (t=-0.98, p=0.3443)	-0.000312 (t=-0.97, p=0.3321)
t-5 - t+5	-0.010991 (t=-2.98, p=0.0035) ***	-0.011924 (t=-0.10, p=0.9172)	0.002249 (t=0.49, p=0.6264)	0.001297 (t=1.15, p=0.2530)	-0.003524 (t=-0.64, p=0.5343)	-0.000173 (t=-0.79, p=0.4310)
t-1 - t+4	-0.004780 (t=-2.70, p=0.0080) ***	-0.008916 (t=0.12, p=0.9036)	0.000481 (t=0.05, p=0.9636)	0.001145 (t=1.33, p=0.1885)	-0.004155 (t=-1.08, p=0.2984)	-0.000090 (t=-0.61, p=0.5423)
t-1 - t+10	-0.005777 (t=-2.01, p=0.0471) **	-0.000599 (t=0.73, p=0.4745)	0.004535 (t=1.27, p=0.2076)	-0.000246 (t=0.33, p=0.7408)	-0.006930 (t=-1.39, p=0.1859)	-0.000245 (t=-0.94, p=0.3473)

H1(2)

Direction	t-20 - t+25	t-15- t+25	t-15- t+20	t-10 - t+15	t-10 - t+10	t-5 - t+15	t-5 - t+10	t-5 - t+5	t-1 - t+4	t-1 - t+10
0	-0.003598 (t=-1.10, p=0.2735)	-0.003079 (t=-0.83, p=0.4066)	-0.003079 (t=-0.83, p=0.4066)	-0.001522 (t=-0.82, p=0.4109)	-0.000893 (t=-0.54, p=0.5908)	-0.001099 (t=-0.55, p=0.5818)	-0.000250 (t=-0.22, p=0.8229)	-0.003323 (t=-1.18, p=0.2381)	-0.000978 (t=-0.06, p=0.9526)	0.001077 (t=0.87, p=0.3838)
1	-0.006413 (t=-2.91, p=0.0039) ***	-0.007010 (t=-3.02, p=0.0028) ***	-0.007010 (t=-3.02, p=0.0028) ***	-0.005788 (t=-2.74, p=0.0066) ***	-0.006841 (t=-3.01, p=0.0029) ***	-0.003756 (t=-1.99, p=0.0474) **	-0.004898 (t=-2.40, p=0.0172) **	-0.003593 (t=-2.46, p=0.0145) **	-0.002703 (t=-2.88, p=0.0044) ***	-0.003970 (t=-2.42, p=0.0165) **

H1(3)

Symbol	Direction	t-20 - t+25	t-15- t+25	t-15- t+20	t-10 - t+15	t-10 - t+10	t-5 - t+15	t-5 - t+10	t-5 - t+5	t-1 - t+4	t-1 - t+10
CAD	0	-0.004365 (t=-0.66, p=0.5123)	-0.002839 (t=-0.48, p=0.6323)	-0.002839 (t=-0.48, p=0.6323)	-0.002558 (t=-0.41, p=0.6807)	-0.003530 (t=-0.63, p=0.5301)	-0.000699 (t=-0.31, p=0.7591)	-0.001150 (t=-0.55, p=0.5858)	-0.005021 (t=-1.04, p=0.3042)	-0.000932 (t=-0.02, p=0.9878)	0.004091 (t=0.60, p=0.5497)
CAD	1	-0.024727 (t=-4.03, p=0.0002) ***	-0.025319 (t=-4.07, p=0.0001) ***	-0.025319 (t=-4.07, p=0.0001) ***	-0.024323 (t=-4.03, p=0.0002) ***	-0.026695 (t=-3.89, p=0.0003) ***	-0.019015 (t=-3.33, p=0.0015) ***	-0.021689 (t=-3.43, p=0.0011) ***	-0.017260 (t=-4.14, p=0.0001) ***	-0.010879 (t=-3.91, p=0.0003) ***	-0.016315 (t=-3.00, p=0.0041) ***
CHE	0	-0.034663 (t=-0.83, p=0.	-0.031160 (t=-1.10, p=0.	-0.031160 (t=-1.10, p=0.	-0.008055 (t=-0.64, p=0.	-0.001840 (t=-0.02, p=0.	0.003661 (t=0.34, p=0.	0.002752 (t=1.24, p=0.	-0.028227 (t=-0.18, p=0.	-0.019540 (t=0.46, p=0.	0.004681 (t=1.64, p=0.

		4260)	2978)	2978)	5348)	9875)	7444)	2425)	8570)	6576)	1320)
CHE		-0.004902 (t=-0.74, p=0.4693)	-0.008939 (t=-0.88, p=0.3948)	-0.008939 (t=-0.88, p=0.3948)	-0.002339 (t=-0.03, p=0.9790)	-0.004974 (t=-0.58, p=0.5693)	0.005162 (t=0.24, p=0.8100)	-0.002339 (t=-0.32, p=0.7528)	-0.000755 (t=0.04, p=0.9717)	-0.001908 (t=-0.53, p=0.6028)	-0.003825 (t=-0.84, p=0.4146)
	1	)	)	)	)	)	)	)	)	)	)
EUR		0.003368 (t=0.37, p=0.7175)	0.004559 (t=0.49, p=0.6310)	0.004559 (t=0.49, p=0.6310)	0.001806 (t=0.22, p=0.8299)	0.003186 (t=0.43, p=0.6673)	-0.000966 (t=-0.13, p=0.9011)	0.000413 (t=0.06, p=0.9515)	-0.003872 (t=-0.68, p=0.5020)	-0.002427 (t=-0.58, p=0.5667)	0.000457 (t=0.08, p=0.9393)
	0	)	)	)	)	)	)	)	)	)	)
EUR		0.005360 (t=0.65, p=0.5233)	0.005262 (t=0.60, p=0.5560)	0.005262 (t=0.60, p=0.5560)	0.007075 (t=1.07, p=0.2911)	0.008703 (t=1.52, p=0.1398)	0.008042 (t=1.64, p=0.1104)	0.009670 (t=2.45, p=0.0204)	0.006569 (t=1.58, p=0.1237)	0.002316 (t=0.93, p=0.3581)	0.007299 (t=2.35, p=0.0254)
	1	)	)	)	)	)	)	)	)	)	)
								**			**
GBR		0.005151 (t=0.74, p=0.4626)	0.001967 (t=1.20, p=0.2387)	0.001967 (t=1.20, p=0.2387)	0.005028 (t=1.36, p=0.1810)	0.004037 (t=1.77, p=0.0849)	0.004219 (t=1.54, p=0.1316)	0.003694 (t=2.04, p=0.0484)	0.003221 (t=2.25, p=0.0304)	0.002389 (t=1.88, p=0.0680)	0.001763 (t=1.64, p=0.1087)
	0	)	)	)	)	)	)	)	)	)	)
						*		**	**	*	
GBR		-0.002359 (t=-0.96, p=0.3441)	-0.003457 (t=-1.43, p=0.1620)	-0.003457 (t=-1.43, p=0.1620)	-0.004806 (t=-2.29, p=0.0275)	-0.004893 (t=-2.62, p=0.0124)	-0.002762 (t=-1.72, p=0.0937)	-0.002849 (t=-1.92, p=0.0622)	-0.000963 (t=-0.73, p=0.4683)	-0.000347 (t=-0.29, p=0.7770)	-0.002657 (t=-2.08, p=0.0446)
	1	)	)	)	)	)	)	)	)	)	)
					**	**	*	*	**	*	**

JPN	0	-0.022979 (t=-1.83, p=0.0929) *	-0.016833 (t=-1.94, p=0.0764) *	-0.016833 (t=-1.94, p=0.0764) *	-0.019974 (t=-2.39, p=0.0342) **	-0.013439 (t=-1.64, p=0.1273)	-0.016329 (t=-1.68, p=0.1184)	-0.009794 (t=-1.10, p=0.2919)	-0.005240 (t=-0.80, p=0.4409)	-0.005128 (t=-1.17, p=0.2660)	-0.008362 (t=-1.48, p=0.1648)
JPN	1	0.001600 (t=0.52, p=0.6960)	0.011707 (t=2.48, p=0.2436)	0.011707 (t=2.48, p=0.2436)	0.016240 (t=3.68, p=0.1688)	0.012967 (t=8.20, p=0.0772) *	0.011247 (t=1.63, p=0.3502)	0.007974 (t=1.96, p=0.3003)	0.008490 (t=2.08, p=0.2856)	0.002660 (t=42.73, p=0.0149) **	0.003095 (t=3.84, p=0.1621)
US	0	-0.001135 (t=-1.54, p=0.1269)	-0.001135 (t=-1.67, p=0.0986) *	-0.001135 (t=-1.67, p=0.0986) *	-0.001243 (t=-2.44, p=0.0174) **	-0.000846 (t=-1.93, p=0.0571) *	-0.001435 (t=-3.01, p=0.0037) ***	-0.001039 (t=-2.59, p=0.0115) **	-0.000652 (t=-2.12, p=0.0372) **	-0.000180 (t=-0.91, p=0.3654)	-0.000572 (t=-1.76, p=0.0826) *
US	1	0.000265 (t=0.32, p=0.7513)	0.000218 (t=0.26, p=0.7965)	0.000218 (t=0.26, p=0.7965)	0.000012 (t=0.02, p=0.9862)	0.000175 (t=0.30, p=0.7675)	0.000195 (t=0.33, p=0.7394)	0.000358 (t=0.74, p=0.4622)	0.000268 (t=0.88, p=0.3822)	-0.000007 (t=-0.03, p=0.9739)	0.000056 (t=0.14, p=0.8881)

H3 (1) – Try by interest rate percentile

Variable	CAR Window 1	CAR Window 2	CAR Window 3	CAR Window 4	CAR Window 5
Percentile 2					
Region 1	0.001813 (0.210)	0.001592 (0.178)	0.000962 (0.223)	0.001005* (0.058)	0.001481 (0.122)
Region 2	0.001911 (0.220)	0.001446 (0.257)	0.000935 (0.277)	0.000507 (0.371)	0.001003 (0.328)
Region 3	0.000723 (0.692)	0.001038 (0.484)	0.000688 (0.490)	0.000551 (0.411)	0.000849 (0.480)

Variable	CAR Window 1	CAR Window 2	CAR Window 3	CAR Window 4	CAR Window 5
Region 4	0.000535 (0.754)	0.000325 (0.819)	0.000067 (0.944)	-0.000085 (0.891)	0.000165 (0.883)
Region 5	-0.000463 (0.761)	-0.000093 (0.940)	-0.000110 (0.897)	-0.000105 (0.853)	-0.000285 (0.778)
Region 6	0.001813 (0.210)	0.001592 (0.178)	0.000962 (0.223)	0.001005* (0.058)	0.001481 (0.122)
Percentile 3					
Region 1	0.001943 (0.149)	0.001700 (0.122)	0.001490** (0.043)	0.000712 (0.148)	0.000820 (0.356)
Region 2	0.001475 (0.243)	0.001082 (0.295)	0.000735 (0.292)	0.000860* (0.063)	0.001170 (0.160)
Region 3	-0.000620 (0.687)	-0.000075 (0.952)	-0.000240 (0.776)	0.000101 (0.858)	0.000144 (0.887)
Region 4	0.000541 (0.698)	0.000052 (0.964)	0.000057 (0.942)	0.000519 (0.309)	0.000674 (0.462)
Region 5	-0.000642 (0.658)	0.000084 (0.944)	0.000100 (0.901)	0.000141 (0.793)	-0.000041 (0.966)
Region 6	0.001943 (0.149)	0.001700 (0.122)	0.001490** (0.043)	0.000712 (0.148)	0.000820 (0.356)
Interest Rate Change					
Region 1	0.002824* (0.052)	0.002211* (0.062)	0.001805** (0.023)	0.000935* (0.078)	0.001306 (0.173)
Region 2	0.000888 (0.552)	0.000898 (0.462)	0.000948 (0.250)	0.000293 (0.589)	0.000239 (0.808)
Region 3	0.001105 (0.520)	0.001356 (0.333)	0.000885 (0.347)	0.000455 (0.470)	0.000953 (0.400)
Region 4	0.000254 (0.879)	0.000055 (0.968)	0.000252 (0.787)	0.000025 (0.968)	-0.000123 (0.911)
Region 5	0.001116 (0.461)	0.000895 (0.471)	0.000926 (0.269)	0.000275 (0.625)	0.000216 (0.830)
Region 6	0.002824* (0.052)	0.002211* (0.062)	0.001805** (0.023)	0.000935* (0.078)	0.001306 (0.173)
Percentile 2 # Interest Rate Change					
Region 1	-0.003445 (0.138)	-0.002238 (0.238)	-0.001682 (0.184)	-0.001770** (0.038)	-0.002198 (0.153)
Region 2	0.000095 (0.966)	-0.000422 (0.815)	-0.000564 (0.643)	-0.000487 (0.544)	-0.000219 (0.880)
Region 3	-0.001209 (0.604)	-0.001702 (0.370)	-0.001013 (0.427)	-0.000974 (0.256)	-0.001714 (0.265)

Variable	CAR Window 1	CAR Window 2	CAR Window 3	CAR Window 4	CAR Window 5
Region 4	0.001834 (0.442)	0.001636 (0.407)	0.001141 (0.390)	0.000657 (0.450)	0.001471 (0.348)
Region 5	-0.002373 (0.348)	-0.000975 (0.638)	-0.000565 (0.686)	-0.000235 (0.802)	-0.000641 (0.702)
Region 6	-0.003445 (0.138)	-0.002238 (0.238)	-0.001682 (0.184)	-0.001770** (0.038)	-0.002198 (0.153)
Percentile 3 # Interest Rate Change					
Region 1	-0.001968 (0.287)	-0.001183 (0.433)	-0.001191 (0.238)	-0.000765 (0.258)	-0.000722 (0.555)
Region 2	0.000287 (0.879)	0.000673 (0.662)	0.000217 (0.835)	-0.000046 (0.946)	0.000368 (0.767)
Region 3	0.000909 (0.658)	0.000849 (0.611)	0.000805 (0.473)	0.000101 (0.893)	0.000089 (0.948)
Region 4	0.001097 (0.597)	0.001835 (0.287)	0.000983 (0.396)	0.000021 (0.978)	0.000722 (0.597)
Region 5	0.000682 (0.717)	0.000812 (0.599)	0.000188 (0.857)	-0.000118 (0.866)	0.000524 (0.675)
Region 6	-0.001968 (0.287)	-0.001183 (0.433)	-0.001191 (0.238)	-0.000765 (0.258)	-0.000722 (0.555)
_cons					
Region 1	-0.002448** (0.015)	-0.002000** (0.015)	-0.001494*** (0.007)	-0.000730** (0.047)	-0.001165* (0.079)
Region 2	-0.002191** (0.020)	-0.001637** (0.033)	-0.001142** (0.028)	-0.000637* (0.062)	-0.001127* (0.068)
Region 3	-0.000942 (0.488)	-0.001053 (0.341)	-0.000636 (0.392)	-0.000341 (0.494)	-0.000687 (0.443)
Region 4	-0.001738 (0.113)	-0.001109 (0.221)	-0.000732 (0.229)	-0.000433 (0.278)	-0.000973 (0.176)
Region 5	-0.000729 (0.534)	-0.000879 (0.361)	-0.000639 (0.325)	-0.000186 (0.668)	-0.000302 (0.698)
Region 6	-0.002448** (0.015)	-0.002000** (0.015)	-0.001494*** (0.007)	-0.000730** (0.047)	-0.001165* (0.079)

H4 (1) SIC Classification

Range of SIC Codes	Group
0100-0999	Agriculture, Forestry and Fishing
1000-1499	Mining
1500-1799	Construction
1800-1999	not used
2000-3999	Manufacturing
4000-4999	Transportation, Communications, Electric, Gas and Sanitary service

5000-5199	Wholesale Trade
5200-5999	Retail Trade
6000-6799	Finance, Insurance and Real Estate
7000-8999	Services
9100-9729	Public Administration
9900-9999	non-classifiable

H4 (2)

Table: Industry-Specific Reactions to Interest Rate Changes and CCI Values T stats (p values)

SIC Group	t-20 - t+20	t-10 - t+15	t-10 - t+10	t-5 - t+15	t-5 -t+10	t-5 - t+5	t-1
Agriculture, Forestry, and Fishing	**2.3357** (0.0229)	**2.2766** (0.0265)	**3.1631** (0.0025)	**2.5119** (0.0148)	**3.2688** (0.0018)	**4.2441** (0.0001)	**4.8** (0.0
Mining	**2.0351** (0.0437)	**2.1745** (0.0313)	1.0215 (0.3087)	1.2641 (0.2082)	0.4541 (0.6504)	0.4308 (0.6673)	0.6 (0.5
Construction	1.3312 (0.1852)	1.109 (0.2693)	1.1918 (0.2353)	**2.3417** (0.0206)	**2.1231** (0.0354)	**2.5236** (0.0127)	1.2 (0.2
Manufacturing	0.5747 (0.5664)	0.8694 (0.3861)	1.0278 (0.3057)	1.024 (0.3075)	0.8187 (0.4143)	1.3694 (0.1730)	0.8 (0.4
Transportation, Communications, Electric, Gas, and Sanitary Services	0.1111 (0.9117)	0.733 (0.4647)	1.3177 (0.1897)	0.7262 (0.4689)	1.1619 (0.2472)	*1.7168* (0.0882)	0.8 (0.1
Wholesale Trade	-1.1986 (0.2326)	-1.2763 (0.2039)	-0.6108 (0.5423)	-0.5665 (0.5719)	-0.5421 (0.5886)	0.0363 (0.9711)	-0.1 (0.7
Retail Trade	1.2552 (0.2114)	0.8336 (0.4059)	0.9565 (0.3404)	0.916 (0.3612)	1.4242 (0.1565)	**2.0601** (0.0412)	1.5 (0.1
Finance, Insurance, and Real Estate	1.2219 (0.2237)	1.4971 (0.1365)	*1.6568* (0.0997)	**2.4893** (0.0139)	***2.6324*** (0.0094)	**2.5966** (0.0104)	***2.9*** (0.0
Services	0.4787 (0.6373)	0.7136 (0.4837)	0.4316 (0.6706)	0.1136 (0.9107)	0.5117 (0.6145)	-0.6985 (0.4929)	-0.8 (0.4
Public Administration	0.396 (0.6958)	0.0347 (0.9726)	0.1667 (0.8691)	0.5569 (0.5830)	-0.5100 (0.6149)	-0.3452 (0.7331)	-1.2 (0.2

H4 By SIC

Symbol	Date	W1	W2	W3	W4	W5	W6	W7	W8	Direction
1	18/03/1980	-0,2816	-0,2902	-0,2739	-0,1779	-0,1633	-0,1170	-0,0895	-0,1568	1
1	15/05/1980	0,2430	0,1207	0,1548	0,1687	0,2292	0,1525	0,0466	0,1893	0
1	05/06/1980	0,2362	0,2334	0,0761	0,1173	-0,0088	-0,0357	-0,0639	-0,0218	1
1	07/08/1980	0,0671	0,0969	0,0316	0,0199	-0,0214	-0,0489	-0,0338	-0,0017	0
1	16/09/1980	-0,0319	-0,0913	-0,0236	-0,0818	-0,0071	-0,0313	-0,1141	-0,0674	1
1	13/10/1980	-0,2533	-0,1613	-0,0935	-0,1042	-0,0482	-0,0613	-0,0468	-0,0520	1
1	21/11/1980	-0,1233	-0,1192	-0,0558	-0,0322	-0,0496	-0,0184	-0,0303	-0,0617	1
1	05/12/1980	-0,0725	-0,0968	-0,0906	-0,0876	-0,0686	-0,0099	-0,0221	-0,0796	0
1	21/12/1980	-0,0360	0,0091	-0,0824	0,0274	-0,0760	-0,0664	-0,0294	-0,0394	1
1	03/02/1981	0,0528	0,0280	-0,0035	0,0315	0,0235	0,0522	0,0646	0,0363	0
1	28/04/1981	0,0587	0,0293	0,0256	0,0106	0,0090	0,0371	0,0417	0,0165	0
1	18/05/1981	0,0844	0,0979	0,0532	0,0744	0,0762	0,0272	0,0231	0,0658	1
1	17/11/1981	0,1581	0,1543	0,1854	0,1741	0,1886	0,1834	0,2039	0,1715	0
1	22/12/1981	-0,0867	-0,0224	-0,0608	-0,1045	-0,0806	-0,0482	-0,0354	-0,0659	1
1	30/03/1982	-0,0084	-0,0120	0,1020	0,0637	0,0965	0,0918	0,0522	0,0434	0
1	15/07/1982	-0,1674	-0,2134	-0,1821	-0,1491	-0,1423	-0,1527	-0,0797	-0,0865	1
1	24/08/1982	0,0923	0,0861	0,0274	0,0591	0,0318	-0,0114	0,0357	0,0790	1
1	16/11/1982	-0,0502	-0,0202	0,0020	-0,0488	0,0073	0,0157	0,0624	0,0619	0
1	21/12/1982	0,0893	0,0989	0,0923	0,1758	0,1438	0,0531	-0,0104	0,1135	0
1	24/05/1983	-0,0671	-0,0049	-0,1551	-0,0767	-0,0977	-0,0885	-0,1087	-0,0790	1
1	23/08/1983	0,0902	0,0177	-0,0667	-0,0102	-0,0774	-0,0610	-0,0028	-0,0313	1
1	04/10/1983	0,2869	0,1856	0,2037	0,1927	0,1868	0,0869	0,0420	0,1722	1
1	29/03/1984	0,0789	0,0110	0,0053	0,0202	0,0049	0,0192	0,0448	0,0195	0
1	17/07/1984	-0,1054	-0,0496	-0,1230	-0,0723	-0,0730	-0,0228	0,0169	-0,0307	0
1	21/08/1984	-0,2083	-0,1728	-0,0707	-0,1363	-0,1027	-0,1512	-0,1159	-0,0869	1
1	02/10/1984	-0,0206	-0,0092	-0,1221	-0,0150	-0,0906	-0,0746	-0,0285	-0,0543	1
1	07/11/1984	0,1867	0,1982	0,1938	0,0823	0,1309	0,0384	0,0479	0,1383	0
1	18/12/1984	0,1382	0,0793	0,1589	0,1574	0,1680	0,1540	0,0232	0,1071	0
1	26/03/1985	-0,1266	-0,1880	-0,1437	-0,0976	-0,1033	-0,0916	-0,0052	-0,0368	0
1	20/05/1985	-0,1457	-0,1525	-0,1405	-0,1081	-0,0879	-0,0704	-0,0236	-0,0381	1
1	20/08/1985	-0,1824	-0,1133	-0,1008	-0,0275	-0,0905	-0,0490	0,0123	-0,0571	0
1	17/12/1985	0,0342	0,0740	-0,0393	-0,0102	-0,0214	-0,0374	-0,0150	0,0059	1
1	18/04/1986	0,0162	-0,0099	0,0179	0,1749	0,0285	0,0125	-0,0092	-0,0112	1
1	21/08/1986	0,2273	0,2193	0,1380	0,1087	0,1102	0,0533	0,0149	0,0562	0
1	16/12/1986	-0,0205	-0,0427	-0,0548	-0,0515	-0,0735	-0,0401	-0,0236	-0,0566	1
1	29/09/1998	0,2000	0,0677	0,1328	0,0743	0,0553	0,1034	0,1412	0,1127	0
1	15/10/1998	0,0638	0,0885	0,0404	-0,0356	-0,0980	-0,0784	0,0066	-0,0120	0
1	17/11/1998	-0,2341	-0,2273	-0,1300	-0,1359	-0,1260	-0,1186	-0,1168	-0,0654	1
1	15/03/2017	-0,0179	0,0057	-0,0173	0,0027	-0,0123	-0,0070	0,0067	0,0004	1
1	14/06/2017	-0,0315	-0,0351	-0,0077	-0,0280	-0,0063	0,0159	0,0077	-0,0198	0
1	13/12/2017	-0,0766	-0,0784	-0,0214	-0,0319	-0,0164	-0,0092	-0,0058	-0,0147	1
1	21/03/2018	0,0730	0,0692	0,0682	0,0435	0,0384	0,0326	0,0120	0,0241	0
1	13/06/2018	-0,0163	-0,0241	-0,0315	-0,0243	-0,0534	-0,0488	-0,0235	-0,0459	1
1	26/09/2018	-0,1057	-0,0768	-0,1015	-0,1381	-0,1085	-0,0866	-0,0217	-0,0778	0
1	19/12/2018	0,0622	0,0504	-0,0151	0,0258	-0,0182	-0,0844	-0,0636	0,0083	1
1	31/07/2019	0,0578	0,1077	0,0764	0,1041	0,0750	0,0931	0,0582	0,0565	0
1	18/09/2019	-0,0382	-0,0353	-0,0058	-0,0329	-0,0032	-0,0003	-0,0055	-0,0120	0
1	30/10/2019	-0,0626	-0,0379	-0,0240	-0,0549	-0,0440	-0,0193	-0,0285	-0,0457	1
1	03/03/2020	-0,0638	-0,0628	-0,0298	-0,0833	-0,0611	-0,0404	-0,0279	-0,0255	1

1	15/03/2020	0,0054	-0,0240	-0,0678	-0,0558	-0,0545	-0,0627	-0,0045	-0,0261	0
1	16/03/2022	0,0934	0,0897	0,0582	0,0522	0,0455	0,0616	-0,0360	-0,0282	0
1	04/05/2022	0,0110	-0,0165	-0,0491	0,0665	0,0033	-0,0473	-0,0720	0,0008	0
1	15/06/2022	-0,2090	-0,2694	-0,1720	-0,2063	-0,1452	-0,1919	-0,0730	-0,0823	1
1	27/07/2022	0,0234	0,0634	0,0382	0,0580	0,0429	-0,0163	-0,0245	0,0227	0
1	21/09/2022	0,0259	0,0042	0,0077	-0,0014	-0,0162	-0,0505	-0,0355	0,0037	1
1	02/11/2022	-0,0362	-0,0498	-0,0125	-0,0448	-0,0335	0,0373	0,0293	-0,0296	0
1	14/12/2022	-0,1536	-0,1219	-0,1321	-0,0793	-0,0959	-0,0832	-0,0436	-0,0588	0
1	01/02/2023	0,0260	-0,0005	-0,0497	-0,0221	-0,0387	-0,0336	-0,0565	-0,0357	1
1	22/03/2023	0,0010	-0,0392	-0,0541	0,0224	0,0011	-0,0021	0,0023	0,0284	0
1	03/05/2023	-0,1006	-0,1057	-0,1007	-0,0814	-0,0771	-0,0490	-0,0621	-0,0835	1
1	26/06/2023	-0,0213	0,0154	-0,0635	-0,0490	-0,0431	0,0112	-0,0170	-0,0594	1
10	16/12/2015	0,0374	0,0509	0,0461	0,0353	0,0389	0,0389	0,0297	0,0297	1
10	14/12/2016	0,0640	0,0667	0,0169	0,0120	-0,0075	-0,0086	-0,0030	-0,0014	1
10	15/03/2017	-0,0126	-0,0124	-0,0049	0,0207	0,0172	0,0058	0,0078	0,0209	1
10	14/06/2017	-0,0097	-0,0206	0,0050	-0,0207	0,0005	-0,0014	0,0030	0,0109	1
10	13/12/2017	-0,0664	-0,0730	-0,0416	-0,0330	-0,0192	-0,0072	-0,0128	-0,0212	1
10	21/03/2018	0,0132	0,0129	-0,0233	-0,0410	-0,0308	-0,0280	-0,0083	-0,0315	1
10	13/06/2018	0,0056	-0,0002	0,0144	0,0154	0,0258	0,0404	0,0479	0,0373	1
10	26/09/2018	0,0518	0,0515	0,0036	0,0248	-0,0129	0,0136	0,0155	-0,0069	1
10	19/12/2018	0,0497	0,0336	0,0385	0,0277	0,0062	0,0050	-0,0095	-0,0081	0
10	31/07/2019	0,0321	0,0285	0,0332	0,0326	0,0272	0,0397	0,0232	0,0354	0
10	18/09/2019	-0,0423	-0,0507	-0,0164	-0,0208	-0,0121	-0,0122	-0,0085	-0,0165	0
10	30/10/2019	0,0107	0,0077	-0,0009	0,0019	-0,0030	-0,0178	-0,0232	-0,0195	0
10	03/03/2020	-0,0433	-0,0504	-0,1143	-0,0425	-0,1289	-0,0495	-0,0687	-0,1531	0
10	15/03/2020	-0,0105	-0,0256	-0,1182	-0,0185	-0,0775	-0,0652	-0,0603	-0,0293	1
10	16/03/2022	0,0377	0,0331	0,0017	0,0050	-0,0011	0,0058	0,0142	0,0113	1
10	04/05/2022	-0,0128	-0,0053	0,0001	-0,0088	0,0028	-0,0124	-0,0243	-0,0099	1
10	15/06/2022	-0,0004	-0,0029	-0,0006	0,0104	0,0000	0,0115	0,0064	-0,0121	1
10	27/07/2022	-0,0009	-0,0010	0,0045	-0,0047	0,0110	0,0232	0,0136	-0,0035	1
10	21/09/2022	0,0413	0,0202	0,0101	0,0185	-0,0009	-0,0045	-0,0169	-0,0130	1
10	02/11/2022	-0,0144	-0,0168	0,0081	-0,0031	0,0146	-0,0013	0,0029	0,0166	1
10	14/12/2022	-0,0323	-0,0060	-0,0339	-0,0191	-0,0270	-0,0105	-0,0032	-0,0221	1
10	01/02/2023	0,0241	0,0134	0,0197	0,0060	0,0137	0,0082	-0,0112	0,0020	1
10	22/03/2023	-0,0825	-0,0738	-0,0412	-0,0418	-0,0299	-0,0157	-0,0047	-0,0191	1
10	03/05/2023	-0,0541	-0,0444	-0,0444	-0,0193	-0,0252	-0,0280	0,0025	-0,0094	1
10	26/06/2023	0,0304	0,0245	0,0230	0,0194	0,0255	-0,0011	0,0010	0,0347	0
2	18/03/1980	-0,1266	-0,1593	-0,1178	-0,1055	-0,0712	-0,0444	-0,0045	-0,0402	0
2	15/05/1980	-0,0643	-0,0527	-0,0337	0,0211	0,0096	0,0106	0,0227	0,0053	0
2	05/06/1980	0,0389	0,0472	0,0162	0,0222	0,0261	0,0361	0,0194	0,0042	1
2	07/08/1980	-0,0209	0,0076	-0,0125	0,0212	0,0106	-0,0253	0,0057	0,0363	1
2	16/09/1980	0,0875	0,0411	0,0497	-0,0096	0,0096	-0,0062	-0,0331	-0,0128	1
2	13/10/1980	-0,0321	-0,0009	0,0301	0,0117	0,0388	0,0536	0,0368	0,0368	1
2	21/11/1980	-0,0406	-0,0231	0,0347	0,0258	0,0443	0,0531	0,0335	0,0416	1
2	05/12/1980	-0,0438	-0,0325	0,0233	-0,0377	-0,0108	-0,0293	-0,0531	-0,0353	0
2	21/12/1980	-0,0806	-0,0969	-0,1039	-0,0655	-0,0627	-0,0149	-0,0280	-0,0787	1

2	03/02/1981	-0,0346	0,0044	0,0007	-0,0074	-0,0142	-0,0071	-0,0151	-0,0231	0
2	28/04/1981	-0,0560	-0,0648	-0,0304	-0,0198	0,0011	0,0008	0,0502	0,0520	1
2	18/05/1981	-0,1113	-0,0502	-0,0432	-0,0580	-0,0454	-0,0068	-0,0020	-0,0489	0
2	17/11/1981	-0,1042	-0,0788	-0,0719	-0,0521	-0,0425	-0,0213	-0,0385	-0,0687	0
2	22/12/1981	-0,0880	-0,0618	0,0054	-0,0131	0,0085	-0,0044	0,0040	0,0100	1
2	30/03/1982	0,0385	0,0990	0,0628	0,0386	0,0504	0,0457	0,0216	0,0261	0
2	15/07/1982	0,0479	0,0299	-0,0029	0,0448	-0,0131	-0,0275	0,0101	0,0285	0
2	24/08/1982	-0,0120	-0,0008	-0,0280	-0,0338	-0,0262	-0,0258	0,0784	0,0540	0
2	16/11/1982	-0,0669	-0,0033	-0,0184	-0,0468	-0,0328	-0,0064	-0,0188	-0,0500	0
2	21/12/1982	0,0615	0,0847	0,0804	0,0925	0,0660	0,0126	-0,0055	0,0466	1
2	24/05/1983	0,1667	0,1156	0,1016	0,0586	0,0546	0,0969	0,0232	-0,0322	1
2	23/08/1983	-0,1776	-0,1517	-0,0797	-0,0982	-0,0720	-0,0274	-0,0291	-0,0668	0
2	04/10/1983	-0,1682	-0,1476	-0,0525	-0,0776	-0,0539	-0,0725	-0,0481	-0,0386	1
2	29/03/1984	-0,0557	-0,0198	0,0132	-0,0178	0,0165	0,0455	0,0336	0,0012	1
2	17/07/1984	-0,1149	-0,0629	-0,1133	-0,0798	-0,1037	-0,0447	-0,0308	-0,0995	1
2	21/08/1984	0,0075	0,0507	0,0606	0,0087	0,0231	0,0317	0,0026	0,0112	0
2	02/10/1984	0,0343	0,0558	0,0990	0,0284	0,0956	0,0803	0,0406	0,0456	0
2	07/11/1984	-0,0216	-0,0372	0,0553	0,0072	0,0324	0,0427	0,0506	0,0286	1
2	18/12/1984	0,0156	0,0283	0,0455	0,0301	0,0345	0,0055	-0,0296	0,0191	0
2	26/03/1985	0,0109	-0,0197	-0,0294	-0,0349	-0,0282	-0,0264	-0,0014	-0,0135	0
2	20/05/1985	-0,0533	-0,0572	-0,0756	-0,0357	-0,0564	-0,0652	-0,0032	-0,0147	0
2	20/08/1985	0,0176	-0,0121	0,0070	0,0360	0,0319	0,0205	-0,0078	0,0176	1
2	17/12/1985	0,0347	0,0122	-0,0297	0,0484	0,0064	-0,0203	-0,0247	0,0343	0
2	18/04/1986	0,1511	0,1632	0,0591	0,0846	0,0452	0,0162	0,0527	0,0800	0
2	21/08/1986	0,1402	0,1357	0,0765	0,0695	0,0724	0,0476	0,0270	0,0568	0
2	16/12/1986	0,1160	0,1289	-0,0127	0,0403	-0,0114	-0,0046	-0,0081	-0,0211	1
2	19/05/1987	-0,0502	-0,0430	0,0239	-0,0549	-0,0351	-0,0265	-0,0454	-0,0572	1
2	22/09/1987	-0,0581	-0,0612	0,0037	0,0354	0,0105	0,0021	-0,0085	0,0066	0
2	04/11/1987	0,0851	0,0520	0,0213	0,1533	0,0924	0,1095	0,0601	0,0928	0
2	10/02/1988	-0,1113	-0,0930	-0,1132	-0,1070	-0,0688	-0,0217	-0,0212	-0,0718	1
2	29/03/1988	-0,1103	-0,0784	-0,0496	-0,0358	-0,0273	-0,0324	-0,0240	-0,0251	1
2	16/08/1988	0,0336	0,0168	0,0069	0,0170	0,0222	-0,0003	0,0038	0,0257	1
2	14/12/1988	0,0321	0,0214	-0,0189	0,0068	-0,0226	-0,0284	-0,0114	-0,0045	1
2	19/12/1989	0,0589	0,0443	0,0370	0,0490	0,0186	0,0108	-0,0018	-0,0045	0
2	01/01/1990	0,0499	0,0440	0,0144	0,0115	0,0143	0,0081	0,0184	0,0214	0
2	13/07/1990	0,1218	0,1256	0,0407	0,1303	0,0597	0,0172	0,0084	0,0560	0
2	29/10/1990	-0,1572	-0,1333	-0,0661	-0,0565	-0,0399	-0,0177	0,0000	-0,0287	0
2	14/11/1990	-0,0766	-0,0619	-0,0265	-0,0653	-0,0233	-0,0345	-0,0250	-0,0108	0
2	07/12/1990	-0,0190	-0,0080	-0,0297	-0,0062	-0,0420	-0,0265	-0,0076	-0,0123	0
2	19/12/1990	-0,0310	-0,0416	0,0077	0,0555	0,0514	0,0275	-0,0001	0,0342	0
2	08/01/1991	0,0612	0,0567	0,0215	0,0109	-0,0101	0,0069	-0,0017	-0,0176	0
2	01/02/1991	0,1885	0,1799	0,1439	0,1275	0,1172	0,1010	0,0711	0,1059	0
2	08/03/1991	0,1129	0,0723	0,0522	0,0119	0,0048	0,0050	-0,0152	-0,0100	0
2	30/04/1991	0,0137	0,0181	0,0126	-0,0078	0,0106	0,0104	-0,0023	0,0033	0
2	06/08/1991	-0,0018	-0,0223	-0,0442	-0,0182	-0,0397	-0,0233	-0,0205	-0,0480	0
2	13/09/1991	0,0329	0,0453	-0,0219	0,0000	0,0018	-0,0065	-0,0108	0,0079	0

2	10/10/1991	0,0184	0,0177	0,0226	0,0114	0,0249	0,0367	0,0169	0,0059	0
2	06/11/1991	-0,0708	-0,0982	-0,0386	-0,0473	-0,0234	-0,0259	-0,0064	-0,0208	0
2	11/12/1991	-0,1075	-0,1353	-0,0791	-0,0418	-0,0432	-0,0292	-0,0135	-0,0385	0
2	20/12/1991	-0,0165	0,0051	-0,0407	-0,0370	-0,0457	-0,0522	-0,0101	-0,0208	0
2	09/04/1992	0,0443	0,0473	0,0244	0,0571	0,0269	0,0185	0,0026	0,0145	0
2	02/07/1992	-0,0040	-0,0008	-0,0413	-0,0053	-0,0188	-0,0324	-0,0149	0,0074	0
2	04/09/1992	-0,0102	0,0000	0,0436	0,0355	0,0392	0,0365	0,0172	0,0350	1
2	04/02/1994	-0,0184	-0,0038	0,0046	0,0054	0,0115	0,0284	-0,0199	-0,0333	1
2	22/03/1994	-0,0203	-0,0150	-0,0166	-0,0247	-0,0203	-0,0079	-0,0222	-0,0515	1
2	18/04/1994	0,0625	0,0606	0,0716	0,0964	0,0876	0,0608	0,0349	0,0722	1
2	17/05/1994	0,0763	0,0667	0,0097	-0,0041	-0,0154	-0,0195	-0,0130	-0,0119	1
2	16/08/1994	-0,0564	-0,0315	-0,0720	-0,0042	-0,0467	-0,0529	-0,0240	-0,0194	1
2	15/11/1994	-0,0720	-0,0744	-0,0768	-0,0904	-0,0573	-0,0530	-0,0339	-0,0383	1
2	01/02/1995	0,0188	0,0363	-0,0080	0,0068	-0,0162	-0,0282	-0,0104	-0,0059	0
2	06/07/1995	-0,0347	-0,0435	-0,0335	-0,0151	-0,0110	-0,0015	0,0143	0,0059	0
2	19/12/1995	0,1006	0,0927	0,0718	0,0729	0,0341	0,0434	0,0191	0,0110	0
2	31/01/1996	0,0391	0,0375	0,0491	0,0560	0,0394	0,0207	0,0098	0,0145	1
2	25/03/1997	0,0174	0,0268	-0,0102	-0,0341	-0,0196	-0,0158	0,0062	-0,0081	0
2	29/09/1998	0,2248	0,1298	0,0094	0,0620	0,0272	0,0624	0,0225	-0,0005	0
2	15/10/1998	0,0971	0,0878	0,0554	0,0445	0,0219	-0,0095	0,0381	0,0725	0
2	17/11/1998	-0,0633	-0,0982	-0,1634	-0,1894	-0,1755	-0,0822	-0,0494	-0,1512	1
2	30/06/1999	-0,1020	-0,1245	-0,1279	-0,0746	-0,0497	-0,0093	-0,0164	-0,0385	1
2	24/08/1999	-0,1309	-0,1384	-0,1006	-0,0950	-0,0559	-0,0403	-0,0507	-0,0497	1
2	16/11/1999	-0,1103	-0,1414	-0,0567	-0,0910	-0,0312	-0,0108	-0,0316	-0,0646	1
2	02/02/2000	0,0623	0,0556	0,0100	-0,0123	0,0443	-0,0194	0,0019	0,0556	1
2	31/03/2000	0,0509	0,0332	0,0174	0,0220	0,0359	0,0135	-0,0015	0,0068	1
2	16/05/2000	0,0933	0,1059	0,1025	-0,0303	0,0101	0,0199	0,0071	0,0062	0
2	03/01/2001	0,0995	0,0690	0,0451	0,0330	-0,0167	0,0164	-0,0239	-0,0466	0
2	31/01/2001	-0,0282	-0,0058	0,0047	-0,0166	0,0122	0,0403	0,0414	0,0252	0
2	20/03/2001	-0,0559	-0,0560	-0,1672	-0,0858	-0,1754	-0,0932	-0,0049	-0,0947	0
2	18/04/2001	0,0439	0,0635	0,0453	0,0131	-0,0056	0,0183	-0,0032	-0,0198	0
2	15/05/2001	-0,0312	-0,0179	-0,0221	0,0052	0,0228	0,0803	0,0955	0,0200	0
2	27/06/2001	-0,1918	-0,1942	-0,2042	-0,1655	-0,1664	-0,1471	-0,0806	-0,0910	0
2	21/08/2001	-0,0796	-0,0919	0,0373	0,0180	0,0401	0,0358	-0,0266	-0,0259	0
2	17/09/2001	0,0095	-0,0639	-0,0921	-0,0314	-0,0737	-0,0817	-0,0640	-0,1058	0
2	02/10/2001	-0,0070	0,0020	-0,0213	0,0783	0,0865	0,0550	0,0239	0,0612	0
2	06/11/2001	0,1256	0,1158	0,0183	-0,0308	-0,0392	-0,0113	0,0295	-0,0058	0
2	11/12/2001	0,0575	0,1325	0,1174	0,0363	0,0606	0,0101	-0,0116	0,0625	0
2	06/11/2002	-0,0077	0,0118	-0,0021	0,0134	0,0310	-0,0077	-0,0101	0,0092	0
2	25/06/2003	-0,0999	-0,1004	-0,0650	-0,0771	-0,0480	-0,0239	-0,0121	-0,0418	1
2	30/06/2004	0,1221	0,1266	0,0974	0,0608	0,0631	0,0467	0,0455	0,0680	1
2	10/08/2004	-0,0299	-0,0623	-0,0423	-0,0421	-0,0565	-0,0561	-0,0172	-0,0373	1
2	21/09/2004	0,0030	0,0155	0,0310	0,0352	0,0453	0,0567	0,0454	0,0414	1
2	10/11/2004	-0,1098	-0,0795	-0,0450	-0,0405	0,0265	-0,0128	-0,0118	0,0315	1
2	14/12/2004	-0,0661	-0,0822	-0,0743	-0,0591	-0,0172	0,0066	0,0230	-0,0016	1
2	02/02/2005	0,1653	0,1687	0,0741	0,0913	0,0581	0,0134	-0,0026	0,0494	1

2	22/03/2005	-0,0360	-0,0681	-0,0132	-0,0512	0,0105	-0,0302	-0,0446	-0,0009	1
2	03/05/2005	-0,0997	-0,0715	-0,0754	-0,0919	-0,1031	-0,0684	0,0007	-0,0465	1
2	30/06/2005	0,0361	0,0356	-0,0335	0,0112	-0,0339	0,0114	0,0310	-0,0316	1
2	09/08/2005	0,0265	0,0690	-0,0151	0,0097	-0,0101	0,0043	0,0090	-0,0121	1
2	20/09/2005	0,0245	0,0209	0,0417	0,0404	0,0545	0,0726	0,0515	0,0386	1
2	01/11/2005	-0,1703	-0,1080	-0,1151	-0,0479	-0,0776	-0,0410	-0,0499	-0,0848	1
2	13/12/2005	0,0562	0,0339	0,0291	0,0133	0,0027	0,0156	-0,0041	-0,0099	1
2	31/01/2006	-0,0503	-0,0667	-0,0464	-0,1144	-0,1074	-0,0377	0,0321	-0,0732	1
2	28/03/2006	0,1069	0,0914	0,0897	0,1447	0,1018	0,0737	0,0375	0,0686	1
2	10/05/2006	-0,1266	-0,1465	-0,1188	-0,0911	-0,0990	-0,0673	-0,0319	-0,0710	1
2	29/06/2006	0,0411	0,0756	0,1285	0,0494	0,1239	0,0728	0,0266	0,0742	0
2	18/09/2007	0,0983	0,1021	0,0460	0,0136	0,0139	0,0150	0,0118	-0,0020	0
2	31/10/2007	-0,0075	-0,0026	-0,0115	0,0347	0,0271	0,0673	0,0347	-0,0033	0
2	11/12/2007	-0,0235	0,0182	-0,0054	0,0880	0,0318	0,0200	0,0040	0,0194	0
2	22/01/2008	0,0438	0,0332	-0,0912	-0,0284	-0,0656	-0,0528	-0,0104	-0,0233	0
2	30/01/2008	0,0651	0,0488	-0,0461	0,0519	0,0202	-0,0216	-0,0146	0,0250	0
2	18/03/2008	0,0760	0,0466	-0,0744	-0,0259	-0,0689	-0,0551	-0,1132	-0,0875	0
2	30/04/2008	0,0212	-0,0224	-0,0304	0,0029	-0,0467	-0,0401	0,0027	0,0017	0
2	08/10/2008	-0,0548	-0,1124	-0,2825	-0,1707	-0,2193	-0,2235	-0,0197	-0,1123	0
2	29/10/2008	0,1056	0,1775	0,0332	0,0849	0,0317	0,0297	0,0894	0,0953	0
2	16/12/2008	0,0524	0,0116	-0,0424	0,1383	0,0877	0,0689	-0,0371	-0,0093	1
2	16/12/2015	-0,1093	-0,0684	-0,0687	-0,0098	-0,0058	0,0055	-0,0379	-0,0089	1
2	14/12/2016	-0,0002	-0,0097	0,0321	-0,0282	-0,0260	-0,0315	-0,0241	-0,0122	1
2	15/03/2017	-0,0317	0,0050	-0,0049	0,0202	0,0052	-0,0168	0,0102	0,0276	1
2	14/06/2017	0,0174	0,0089	0,0141	0,0253	0,0038	-0,0229	-0,0233	-0,0122	1
2	13/12/2017	0,0607	0,0980	0,0737	0,0794	0,0535	0,0071	-0,0034	0,0604	1
2	21/03/2018	0,1226	0,1376	0,0760	0,1104	0,0816	0,0578	0,0732	0,0818	1
2	13/06/2018	-0,0476	-0,0656	0,0176	0,0146	0,0327	-0,0009	-0,0231	0,0175	1
2	26/09/2018	-0,0250	-0,0036	0,0835	0,0191	0,0610	0,0409	0,0108	0,0364	1
2	19/12/2018	0,0508	0,0500	0,0322	0,0521	0,0326	0,0065	-0,0056	0,0203	0
2	31/07/2019	-0,0935	-0,0804	-0,0475	-0,0481	-0,0512	-0,0374	0,0051	-0,0142	0
2	18/09/2019	0,0376	0,0660	0,0497	-0,0259	-0,0128	0,0163	-0,0412	-0,0772	0
2	30/10/2019	-0,0251	-0,0102	0,0293	-0,0494	-0,0012	0,0099	0,0348	0,0050	0
2	03/03/2020	-0,1274	-0,1195	-0,1300	-0,0855	-0,1651	-0,1802	-0,2257	-0,1976	0
2	15/03/2020	-0,0054	-0,0236	-0,2467	-0,0341	-0,1731	-0,1153	0,0492	-0,0458	1
2	16/03/2022	0,0472	0,0627	-0,0057	-0,0850	-0,0621	-0,0410	-0,0159	-0,0147	1
2	04/05/2022	0,0150	0,0153	-0,0478	0,0769	0,0411	0,0281	-0,0103	0,0229	1
2	15/06/2022	-0,3768	-0,3832	-0,2669	-0,3553	-0,2911	-0,2800	-0,1660	-0,2295	1
2	27/07/2022	0,0050	0,0832	-0,0127	-0,0282	-0,0444	-0,0457	-0,0125	-0,0460	1
2	21/09/2022	0,0594	-0,0010	0,0254	0,0455	0,0257	-0,0557	-0,0782	0,0346	1
2	02/11/2022	0,0151	-0,0170	0,0295	-0,0009	0,0095	0,0205	0,0426	-0,0054	1
2	14/12/2022	-0,0855	-0,0539	-0,0562	-0,0017	-0,0022	0,0058	0,0263	0,0248	1
2	01/02/2023	-0,1232	-0,1182	-0,1151	-0,1157	-0,0997	-0,0880	-0,0670	-0,0792	1
2	22/03/2023	-0,0283	-0,0291	-0,0264	0,0245	0,0161	-0,0130	0,0302	0,0577	1
2	03/05/2023	-0,0431	-0,0611	-0,0411	-0,0068	-0,0310	-0,0210	-0,0008	-0,0210	1
2	26/06/2023	0,0701	0,1129	0,0415	0,0451	0,0597	0,0259	0,0244	0,0619	0

3	18/03/1980	-0,1159	-0,0883	-0,1437	-0,1315	-0,1449	-0,1184	-0,0648	-0,0970	0
3	15/05/1980	0,0748	0,0702	0,1069	0,0844	0,0717	0,0375	0,0289	0,0625	0
3	05/06/1980	0,1826	0,1650	0,0598	0,0624	0,0222	0,0013	0,0048	0,0169	1
3	07/08/1980	0,0642	0,0939	0,0667	0,0401	0,0424	0,0642	0,0356	0,0193	1
3	16/09/1980	0,0602	0,0985	0,1125	0,1010	0,0872	0,1005	0,0385	0,0329	1
3	13/10/1980	-0,0917	-0,1104	-0,0881	-0,1310	-0,0898	-0,1106	-0,0784	-0,0697	1
3	21/11/1980	-0,1058	-0,0952	-0,0693	-0,0679	-0,0378	-0,0008	-0,0035	-0,0359	1
3	05/12/1980	-0,0799	-0,0673	-0,0746	-0,0402	-0,0771	-0,0798	-0,0569	-0,0633	0
3	21/12/1980	-0,0560	-0,0636	-0,0279	0,0029	0,0234	0,0454	0,0409	0,0200	1
3	03/02/1981	0,0032	0,0121	0,0426	0,0261	0,0390	0,0093	0,0380	0,0631	0
3	28/04/1981	-0,0028	-0,0026	-0,0134	-0,0179	-0,0057	0,0016	-0,0337	-0,0408	1
3	18/05/1981	-0,0267	-0,0612	0,0043	-0,0272	-0,0051	-0,0341	-0,0078	0,0180	0
3	17/11/1981	0,0958	0,0805	0,1112	0,0454	0,0825	0,0195	0,0036	0,0655	0
3	22/12/1981	-0,0351	-0,0643	-0,0549	-0,0633	-0,0498	-0,0352	-0,0475	-0,0596	1
3	30/03/1982	0,0453	0,0558	0,0447	0,1146	0,0586	0,0695	0,0405	0,0310	0
3	15/07/1982	0,0262	0,0541	0,0834	0,0628	0,0634	0,1217	0,0425	0,0178	0
3	24/08/1982	-0,0116	0,0162	0,0265	0,0343	0,0195	0,0255	0,0161	0,0030	0
3	16/11/1982	0,0712	0,0215	0,0492	-0,0024	-0,0017	0,0036	-0,0175	-0,0330	0
3	21/12/1982	-0,1269	-0,0968	-0,1057	-0,0354	-0,0691	-0,0437	-0,0270	-0,0576	1
3	24/05/1983	0,0525	0,0098	0,0518	0,0173	0,0374	0,0184	0,0120	0,0326	1
3	23/08/1983	-0,0257	-0,0411	-0,0117	-0,0031	-0,0051	-0,0313	-0,0079	0,0205	0
3	04/10/1983	0,0138	-0,0155	0,0008	0,0267	0,0395	0,0346	0,0028	0,0087	1
3	29/03/1984	-0,0008	0,0023	-0,1126	-0,0561	-0,0935	-0,0222	-0,0150	-0,0872	1
3	17/07/1984	-0,1243	-0,1002	-0,0143	-0,0482	-0,0226	-0,0545	-0,0407	-0,0210	1
3	21/08/1984	-0,0677	-0,0818	-0,0725	-0,0333	-0,0427	-0,0479	-0,0067	-0,0158	0
3	02/10/1984	0,0347	0,0420	0,0033	0,0010	0,0055	0,0026	0,0076	0,0122	0
3	07/11/1984	0,0722	0,0606	0,0744	0,0572	0,0414	0,0249	0,0117	0,0221	1
3	18/12/1984	0,0833	0,0711	-0,0094	-0,0122	0,0084	-0,0063	0,0164	0,0318	0
3	26/03/1985	0,0211	-0,0014	-0,1374	-0,0422	-0,1019	-0,0641	-0,0409	-0,0890	0
3	20/05/1985	-0,0788	-0,0949	-0,0645	-0,0675	-0,0403	-0,0094	0,0243	-0,0185	0
3	20/08/1985	-0,0583	-0,0386	0,0247	-0,0052	0,0392	0,0562	0,0185	0,0144	1
3	17/12/1985	-0,0735	-0,0957	-0,0350	-0,0373	-0,0245	-0,0522	-0,0807	-0,0336	0
3	18/04/1986	0,0240	0,0408	0,0594	-0,0002	0,0787	0,0524	0,0186	0,0474	0
3	21/08/1986	0,0199	0,0029	0,0080	0,0088	-0,0147	0,0013	0,0076	-0,0064	0
3	16/12/1986	0,0265	0,0249	0,0740	0,1150	0,1002	0,0928	0,0925	0,0851	1
3	19/05/1987	-0,2273	-0,1720	-0,1010	-0,1412	-0,1171	-0,0988	0,0402	0,0296	1
3	22/09/1987	0,0943	0,0039	0,1147	0,1427	0,1443	0,0266	-0,0066	0,1071	0
3	04/11/1987	-0,1524	-0,1460	-0,0544	0,1127	0,1181	0,0778	-0,0108	0,0848	0
3	10/02/1988	0,1180	0,0802	0,1032	0,0190	0,0461	0,0452	0,0123	-0,0101	1
3	29/03/1988	-0,0656	-0,0212	-0,0226	0,0012	-0,0490	-0,0593	-0,0062	-0,0465	1
3	16/08/1988	-0,0593	-0,0053	-0,0130	-0,0258	-0,0081	-0,0101	0,0356	0,0212	1
3	14/12/1988	-0,0516	-0,1081	-0,0941	-0,0724	-0,0836	-0,0217	-0,0041	-0,0594	1
3	19/12/1989	-0,0160	-0,0081	0,0442	-0,0349	-0,0182	-0,0120	0,0200	0,0005	0
3	01/01/1990	0,0026	-0,0049	-0,0263	0,0246	0,0161	0,0243	0,0014	-0,0038	0
3	13/07/1990	-0,0538	-0,0573	-0,0584	-0,0560	-0,0379	0,0276	-0,0221	-0,0718	0
3	29/10/1990	0,0347	0,0136	-0,0562	0,0588	0,0525	0,0167	-0,0347	-0,0474	0

3	14/11/1990	0,0853	0,1911	0,1898	0,2263	0,2228	0,0530	0,0126	0,1780	0
3	07/12/1990	0,4722	0,4854	0,3417	0,2668	0,1636	0,1082	0,0382	0,1690	0
3	19/12/1990	0,4494	0,3705	0,2564	0,2087	0,2187	0,1069	0,0598	0,1988	0
3	08/01/1991	0,7587	0,7556	0,0909	0,4737	0,1190	0,1203	-0,0300	0,0156	0
3	01/02/1991	0,7388	0,8009	0,5692	0,6009	0,5273	0,4381	0,1503	0,1795	0
3	08/03/1991	0,1217	0,1517	0,0486	0,1220	0,0896	0,1173	-0,0024	-0,0097	0
3	30/04/1991	-0,4436	-0,4240	-0,2607	-0,2610	-0,2158	-0,1101	-0,0511	-0,1798	0
3	06/08/1991	-0,0500	-0,0345	-0,0639	0,0968	-0,0063	0,0138	0,0336	-0,0048	0
3	13/09/1991	0,0179	0,0931	-0,0435	0,0091	0,0158	0,0012	0,0158	0,0340	0
3	10/10/1991	0,0762	0,0581	-0,0076	-0,0099	-0,0187	0,0573	-0,0280	-0,0573	0
3	06/11/1991	-0,0381	0,0208	-0,0178	0,0298	0,0306	0,1025	0,0663	0,0109	0
3	11/12/1991	0,0219	-0,0036	-0,0563	0,0301	-0,0469	-0,1158	-0,0728	-0,0137	0
3	20/12/1991	0,0564	0,0548	0,0502	0,1328	0,1185	0,0640	0,0621	0,1534	0
3	09/04/1992	-0,2305	-0,2000	-0,0926	-0,0429	-0,0476	-0,1222	0,0595	0,0763	0
3	02/07/1992	-0,0052	0,0020	0,0319	0,0191	0,0486	0,0062	0,0083	0,0361	0
3	04/09/1992	0,0468	0,0601	0,0370	0,0305	0,0378	0,0447	-0,0202	-0,0237	1
3	04/02/1994	-0,0590	-0,0904	0,0222	-0,0127	0,0139	0,0283	0,0146	-0,0005	1
3	22/03/1994	-0,1080	-0,0843	-0,0227	-0,0056	-0,0091	-0,0110	-0,0065	-0,0164	1
3	18/04/1994	-0,0335	-0,0345	0,0030	0,0010	-0,0069	-0,0253	-0,0155	-0,0036	1
3	17/05/1994	-0,0818	-0,0623	-0,0627	-0,0596	-0,0769	-0,0483	-0,0527	-0,0676	1
3	16/08/1994	0,0649	0,0975	0,0498	0,0614	0,0467	0,0620	0,0521	0,0311	1
3	15/11/1994	-0,0741	-0,0555	-0,0825	-0,0848	-0,0650	-0,0598	-0,0320	-0,0387	1
3	01/02/1995	0,1150	0,0899	0,0986	0,0783	0,1002	0,0980	0,1084	0,0935	0
3	06/07/1995	0,0284	0,0434	-0,0084	0,0144	0,0031	0,0418	0,0307	0,0013	0
3	19/12/1995	-0,0312	-0,0133	0,0080	0,0226	0,0188	0,0059	-0,0042	0,0055	0
3	31/01/1996	-0,0238	-0,0325	0,0303	0,0532	0,0516	0,0375	0,0306	0,0425	1
3	25/03/1997	0,0121	0,0125	0,0289	-0,0161	-0,0093	0,0163	0,0142	-0,0104	0
3	29/09/1998	-0,1611	-0,1086	-0,2167	-0,0780	-0,1966	-0,0728	-0,0235	-0,1481	0
3	15/10/1998	0,0579	0,0884	-0,0136	0,1782	0,0999	0,0747	0,1212	0,1613	0
3	17/11/1998	0,2623	0,2087	0,0622	0,0667	0,0387	-0,0008	0,0127	0,0629	1
3	30/06/1999	0,0107	-0,0056	0,0667	0,0317	0,0146	0,0134	0,0163	0,0172	1
3	24/08/1999	-0,1007	-0,0771	-0,0345	-0,0312	-0,0332	-0,0614	-0,0455	-0,0243	1
3	16/11/1999	0,0374	0,1119	0,0570	-0,0550	-0,0599	-0,0373	0,0028	-0,0342	1
3	02/02/2000	0,0930	0,1031	0,0479	0,0472	0,0224	0,0365	0,0325	0,0200	1
3	31/03/2000	0,1718	0,1964	0,0356	-0,0610	-0,0361	-0,0635	0,0277	0,0258	1
3	16/05/2000	0,0728	0,0957	-0,0086	-0,0136	-0,0413	-0,0309	-0,0481	-0,0680	0
3	03/01/2001	-0,1305	-0,1697	-0,0664	-0,0663	-0,0520	-0,0068	-0,0391	-0,1073	0
3	31/01/2001	-0,1190	-0,0898	-0,0304	0,0047	0,0352	0,0313	0,0600	0,0704	0
3	20/03/2001	-0,0260	-0,0378	0,0346	0,0158	0,0376	0,0242	0,1019	0,0927	0
3	18/04/2001	-0,0513	-0,1246	-0,0630	-0,0302	-0,0377	0,0270	0,0211	-0,0280	0
3	15/05/2001	-0,1233	-0,1282	-0,1061	-0,1250	-0,0942	-0,0554	-0,0702	-0,1150	0
3	27/06/2001	0,0160	-0,0015	0,0212	0,1768	0,1046	0,0620	0,0160	0,0664	0
3	21/08/2001	-0,2372	-0,1887	0,0044	-0,0780	0,0623	0,0231	0,0084	0,0392	0
3	17/09/2001	0,0353	0,0350	-0,0629	-0,0814	-0,0921	-0,1253	-0,1242	-0,0322	0
3	02/10/2001	0,0162	-0,0579	0,1323	0,0523	0,0892	0,0684	0,0320	0,0716	0
3	06/11/2001	0,1204	0,0682	0,0202	0,0324	0,0041	0,0711	0,0213	-0,0385	0

3	11/12/2001	0,1020	0,1037	0,1709	0,0449	0,0854	0,0524	0,0305	0,0702	0
3	06/11/2002	0,0385	0,0114	-0,0637	-0,0094	-0,0455	-0,0403	-0,0597	-0,0625	0
3	25/06/2003	-0,0756	-0,1249	-0,0604	-0,1297	-0,0746	-0,0731	-0,0385	-0,0454	1
3	30/06/2004	0,0663	0,0670	0,0659	0,0568	0,0488	0,0180	0,0216	0,0264	1
3	10/08/2004	0,1463	0,1214	0,1252	0,0696	0,0856	0,0810	0,0100	0,0291	1
3	21/09/2004	-0,0616	-0,0481	-0,0728	-0,0876	-0,0856	0,0114	0,0176	-0,0944	1
3	10/11/2004	0,0288	0,0249	-0,0171	-0,0518	-0,0132	-0,0047	0,0372	0,0249	1
3	14/12/2004	0,0626	0,0534	0,0798	0,0455	0,0708	0,0727	0,0386	0,0263	1
3	02/02/2005	0,0031	0,0122	-0,0164	0,0099	-0,0007	0,0217	0,0326	0,0003	1
3	22/03/2005	-0,0328	-0,0628	-0,0421	0,0237	0,0038	0,0104	0,0261	0,0019	1
3	03/05/2005	-0,0460	-0,0218	-0,0303	-0,0304	-0,0231	-0,0080	0,0082	-0,0097	1
3	30/06/2005	0,0381	0,0429	0,0062	0,0236	0,0069	0,0118	0,0215	0,0016	1
3	09/08/2005	-0,0515	-0,0495	-0,0743	-0,0799	-0,0954	-0,0629	-0,0288	-0,0578	1
3	20/09/2005	-0,0948	-0,0829	-0,0298	-0,0689	-0,0347	-0,0317	-0,0050	-0,0103	1
3	01/11/2005	-0,0946	-0,0407	-0,0481	0,0007	-0,0351	-0,0349	0,0527	0,0014	1
3	13/12/2005	0,0462	0,0372	0,0135	0,0286	0,0192	0,0290	0,0357	0,0327	1
3	31/01/2006	-0,0580	-0,0346	-0,0659	-0,0385	-0,0589	-0,0408	-0,0247	-0,0498	1
3	28/03/2006	0,0433	0,0541	0,1148	0,0515	0,0914	0,0285	0,0008	0,0589	1
3	10/05/2006	-0,1933	-0,1822	-0,0274	-0,0246	0,0209	-0,0042	-0,0253	0,0105	1
3	29/06/2006	-0,0023	0,0575	-0,0333	-0,0032	-0,0281	0,0101	-0,0150	-0,0412	0
3	18/09/2007	-0,1429	-0,1277	-0,0954	-0,0228	-0,0338	-0,0817	-0,0511	-0,0323	0
3	31/10/2007	-0,0361	-0,0544	0,1407	-0,0637	0,0889	0,0164	-0,0438	0,0336	0
3	11/12/2007	0,0860	0,0865	0,2214	0,1398	0,1365	0,1084	0,0146	0,0540	0
3	22/01/2008	0,4094	0,3828	0,4016	0,3749	0,3982	0,3573	0,2510	0,3175	0
3	30/01/2008	0,4530	0,4799	0,3607	0,2852	0,2209	0,2510	0,0687	0,0372	0
3	18/03/2008	0,0410	0,0179	0,1136	0,0450	0,1156	0,0369	0,0601	0,1009	0
3	30/04/2008	-0,3186	-0,2692	-0,1187	-0,1508	-0,0789	-0,0377	-0,0546	-0,0887	0
3	08/10/2008	0,1310	0,0517	0,2230	-0,0620	0,1220	0,1367	-0,0078	0,0815	0
3	29/10/2008	-0,0331	-0,0029	-0,1621	-0,1896	-0,1553	-0,0655	0,0195	-0,0617	0
3	16/12/2008	0,2391	0,4454	0,0717	0,0460	-0,0968	-0,0594	-0,0436	-0,0879	1
3	16/12/2015	-0,0691	-0,0743	-0,0396	-0,0679	-0,0159	-0,0154	0,0027	-0,0029	1
3	14/12/2016	0,0196	0,0113	-0,0144	-0,0045	-0,0040	-0,0013	-0,0362	-0,0316	1
3	15/03/2017	0,0539	0,0623	0,0393	0,0099	0,0151	0,0101	0,0034	0,0039	1
3	14/06/2017	0,0184	0,0010	0,0158	0,0176	0,0092	0,0161	0,0122	-0,0005	1
3	13/12/2017	-0,0424	-0,0425	-0,0267	-0,0250	-0,0275	-0,0364	-0,0290	-0,0122	1
3	21/03/2018	-0,0222	0,0225	0,0904	0,0044	0,0762	0,0319	0,0344	0,0765	1
3	13/06/2018	-0,0071	0,0157	-0,0352	0,0136	-0,0088	-0,0061	-0,0296	-0,0331	1
3	26/09/2018	-0,0706	-0,0602	-0,0349	-0,0630	-0,0462	-0,0586	-0,0124	-0,0158	1
3	19/12/2018	0,0956	0,0451	0,0363	0,1261	0,0640	0,0375	0,0186	0,0470	0
3	31/07/2019	0,0166	0,0310	0,0090	0,0689	0,0564	0,0554	0,0207	0,0459	0
3	18/09/2019	0,1100	0,0870	0,0722	0,0602	0,0515	0,0199	0,0232	0,0578	0
3	30/10/2019	-0,0189	-0,0501	-0,0246	-0,0558	-0,0537	-0,0527	-0,0390	-0,0248	0
3	03/03/2020	-0,4368	-0,4479	-0,5502	-0,4815	-0,5311	-0,1221	-0,0621	-0,4396	0
3	15/03/2020	-0,2820	-0,2823	-0,2647	-0,2985	-0,2911	-0,5153	-0,2300	-0,0881	1
3	16/03/2022	-0,0628	-0,0619	-0,1027	-0,1490	-0,1061	-0,0660	-0,0442	-0,1016	1
3	04/05/2022	0,1371	0,1263	0,0758	0,0579	0,0314	0,0145	0,0312	0,0280	1

3	15/06/2022	0,0990	0,0924	0,0164	0,0578	0,0054	-0,0052	-0,0415	-0,0062	1
3	27/07/2022	-0,0170	-0,0920	-0,0855	-0,0791	-0,0549	-0,0757	-0,0610	-0,0576	1
3	21/09/2022	0,0079	-0,0084	0,0442	0,0848	0,0708	0,0627	-0,0010	0,0317	1
3	02/11/2022	0,0039	-0,0203	0,0306	0,0271	0,0414	0,0143	-0,0105	0,0389	1
3	14/12/2022	0,0746	0,0781	0,0458	0,0584	0,0430	0,0434	0,0369	0,0357	1
3	01/02/2023	-0,0387	-0,0445	-0,0339	-0,0357	-0,0275	-0,0311	-0,0062	-0,0162	1
3	22/03/2023	0,0528	0,0246	-0,0058	-0,0623	-0,0470	-0,0314	-0,0116	-0,0387	1
3	03/05/2023	-0,0501	-0,0493	0,0073	-0,0757	-0,0245	-0,0153	0,0112	-0,0063	1
3	26/06/2023	0,0328	0,0461	0,0241	0,0353	0,0271	0,0327	0,0097	-0,0017	0
4	18/03/1980	-0,0164	-0,0026	-0,0100	-0,0063	-0,0071	-0,0134	-0,0115	-0,0120	0
4	15/05/1980	0,0196	0,0187	0,0230	0,0106	0,0133	0,0103	-0,0004	0,0035	0
4	05/06/1980	0,0076	-0,0047	-0,0079	-0,0072	-0,0082	-0,0084	-0,0092	-0,0095	1
4	07/08/1980	0,0533	0,0403	0,0204	0,0198	0,0103	0,0143	0,0017	-0,0029	1
4	16/09/1980	-0,0057	-0,0038	-0,0008	-0,0125	-0,0044	0,0079	0,0031	-0,0090	1
4	13/10/1980	-0,0405	-0,0486	-0,0223	-0,0176	-0,0123	-0,0094	-0,0054	-0,0096	1
4	21/11/1980	-0,0403	-0,0392	-0,0252	-0,0289	-0,0150	-0,0195	-0,0145	-0,0085	1
4	05/12/1980	-0,0017	0,0103	-0,0219	0,0051	-0,0114	-0,0100	-0,0068	-0,0102	0
4	21/12/1980	0,0164	0,0247	0,0097	0,0313	0,0289	0,0183	0,0196	0,0335	1
4	03/02/1981	0,0107	0,0087	-0,0002	-0,0018	-0,0011	0,0041	-0,0008	-0,0038	0
4	28/04/1981	0,0148	0,0164	-0,0039	-0,0146	-0,0185	-0,0169	-0,0179	-0,0233	1
4	18/05/1981	-0,0077	-0,0120	0,0140	0,0126	0,0230	0,0034	0,0005	0,0200	0
4	17/11/1981	0,0084	0,0113	0,0065	-0,0042	0,0003	-0,0015	-0,0057	-0,0059	0
4	22/12/1981	0,0240	0,0292	0,0181	0,0189	0,0207	0,0094	0,0005	0,0138	1
4	30/03/1982	0,0057	0,0106	0,0139	0,0078	0,0008	-0,0046	-0,0032	-0,0004	0
4	15/07/1982	-0,0126	-0,0133	-0,0031	-0,0134	-0,0099	0,0027	-0,0026	-0,0164	0
4	24/08/1982	0,0067	0,0102	0,0184	0,0105	0,0151	0,0133	0,0086	0,0117	0
4	16/11/1982	0,0264	0,0133	0,0192	0,0105	0,0106	0,0051	-0,0022	0,0006	0
4	21/12/1982	0,0081	0,0091	-0,0149	0,0117	-0,0051	0,0017	0,0043	-0,0046	1
4	24/05/1983	0,0268	0,0253	0,0177	0,0205	0,0224	0,0155	0,0085	0,0145	1
4	23/08/1983	-0,0190	-0,0161	-0,0036	-0,0012	-0,0036	-0,0038	0,0007	0,0019	0
4	04/10/1983	-0,0190	-0,0180	-0,0065	-0,0161	-0,0107	-0,0063	-0,0048	-0,0087	1
4	29/03/1984	0,0103	0,0020	-0,0030	-0,0021	-0,0041	-0,0006	0,0014	-0,0032	1
4	17/07/1984	-0,0069	-0,0012	-0,0102	0,0083	-0,0061	-0,0057	-0,0007	-0,0032	1
4	21/08/1984	0,0082	0,0119	0,0014	0,0028	0,0034	0,0037	-0,0011	-0,0029	0
4	02/10/1984	-0,0095	-0,0114	-0,0079	-0,0066	-0,0117	-0,0101	-0,0026	-0,0046	0
4	07/11/1984	0,0002	0,0010	-0,0034	0,0021	0,0017	0,0015	0,0039	0,0038	1
4	18/12/1984	0,0187	0,0169	0,0066	0,0091	0,0090	0,0015	-0,0031	0,0052	0
4	26/03/1985	-0,0220	-0,0234	-0,0082	-0,0004	-0,0025	-0,0017	0,0039	0,0013	0
4	20/05/1985	-0,0228	-0,0106	-0,0014	-0,0075	-0,0068	-0,0007	0,0022	-0,0057	0
4	20/08/1985	-0,0191	-0,0219	-0,0089	-0,0147	-0,0068	-0,0051	-0,0011	-0,0031	1
4	17/12/1985	0,0248	0,0207	0,0082	0,0049	0,0026	-0,0074	-0,0058	0,0051	0
4	18/04/1986	-0,0077	-0,0073	-0,0041	-0,0005	0,0013	0,0019	-0,0016	0,0008	0
4	21/08/1986	0,0008	0,0048	0,0092	-0,0011	0,0029	-0,0017	-0,0020	0,0014	0
4	16/12/1986	0,0162	0,0221	0,0045	0,0157	0,0084	0,0031	0,0029	0,0065	1
4	19/05/1987	-0,0160	-0,0048	-0,0052	-0,0082	-0,0091	-0,0080	-0,0048	-0,0057	1
4	22/09/1987	-0,0171	-0,0241	0,0079	0,0076	0,0093	0,0027	-0,0044	0,0022	0

4	04/11/1987	-0,0306	-0,0300	-0,0008	0,0313	0,0310	0,0278	0,0037	0,0083	0
4	10/02/1988	0,0296	0,0286	0,0174	0,0208	0,0146	0,0045	0,0010	0,0134	1
4	29/03/1988	0,0209	0,0086	-0,0012	0,0007	-0,0057	-0,0031	-0,0009	-0,0060	1
4	16/08/1988	-0,0291	-0,0234	-0,0196	-0,0131	-0,0121	-0,0094	-0,0064	-0,0072	1
4	14/12/1988	0,0273	0,0355	0,0269	0,0317	0,0203	0,0085	0,0101	0,0207	1
4	19/12/1989	0,0282	0,0295	0,0204	0,0189	0,0172	0,0017	0,0000	0,0153	0
4	01/01/1990	0,0155	0,0144	0,0191	0,0166	0,0165	0,0169	0,0159	0,0178	0
4	13/07/1990	-0,0360	-0,0354	-0,0022	-0,0214	-0,0055	-0,0046	-0,0037	-0,0053	0
4	29/10/1990	0,0188	0,0107	0,0048	0,0133	0,0049	0,0097	0,0035	-0,0018	0
4	14/11/1990	0,0238	0,0176	0,0023	0,0052	0,0014	-0,0002	0,0076	0,0094	0
4	07/12/1990	0,0386	0,0346	0,0147	0,0216	0,0124	0,0106	0,0091	0,0113	0
4	19/12/1990	0,0344	0,0353	0,0296	0,0232	0,0217	0,0056	-0,0012	0,0221	0
4	08/01/1991	0,0623	0,0568	0,0290	0,0309	0,0229	0,0155	0,0010	0,0064	0
4	01/02/1991	0,0520	0,0545	0,0431	0,0319	0,0351	0,0277	0,0091	0,0179	0
4	08/03/1991	0,0208	0,0198	0,0171	0,0161	0,0138	0,0071	0,0012	0,0033	0
4	30/04/1991	-0,0372	-0,0315	-0,0212	-0,0239	-0,0170	-0,0062	-0,0049	-0,0149	0
4	06/08/1991	-0,0130	-0,0113	-0,0130	-0,0073	-0,0118	-0,0010	-0,0058	-0,0182	0
4	13/09/1991	0,0053	0,0115	0,0140	0,0084	0,0106	0,0058	0,0094	0,0157	0
4	10/10/1991	0,0218	0,0169	0,0151	0,0150	0,0121	0,0048	0,0040	0,0128	0
4	06/11/1991	-0,0017	-0,0026	-0,0073	-0,0041	-0,0058	-0,0022	-0,0023	-0,0059	0
4	11/12/1991	0,0099	0,0104	-0,0144	-0,0043	-0,0133	-0,0166	-0,0079	-0,0071	0
4	20/12/1991	0,0254	0,0232	0,0058	0,0318	0,0115	-0,0026	0,0041	0,0180	0
4	09/04/1992	-0,0282	-0,0305	-0,0304	-0,0177	-0,0225	-0,0187	-0,0101	-0,0147	0
4	02/07/1992	-0,0004	-0,0003	-0,0027	0,0092	0,0063	-0,0017	-0,0020	0,0086	0
4	04/09/1992	0,0041	0,0050	0,0085	0,0094	0,0104	0,0077	0,0079	0,0064	1
4	04/02/1994	0,0005	0,0005	0,0010	0,0033	0,0043	0,0051	0,0080	0,0075	1
4	22/03/1994	-0,0372	-0,0359	-0,0151	-0,0284	-0,0218	-0,0140	-0,0118	-0,0163	1
4	18/04/1994	-0,0381	-0,0330	-0,0043	-0,0116	-0,0008	-0,0145	-0,0092	0,0038	1
4	17/05/1994	-0,0211	-0,0154	-0,0237	-0,0224	-0,0178	-0,0179	-0,0060	-0,0064	1
4	16/08/1994	0,0195	0,0203	0,0162	0,0105	0,0097	0,0065	0,0050	0,0077	1
4	15/11/1994	-0,0234	-0,0249	-0,0107	-0,0085	-0,0094	-0,0019	0,0025	-0,0056	1
4	01/02/1995	-0,0015	-0,0095	-0,0015	0,0007	-0,0010	-0,0077	-0,0026	0,0086	0
4	06/07/1995	-0,0010	0,0009	-0,0008	0,0080	0,0029	0,0058	0,0047	0,0001	0
4	19/12/1995	0,0018	-0,0070	0,0045	0,0115	0,0097	0,0057	0,0050	0,0097	0
4	31/01/1996	-0,0088	-0,0129	-0,0010	-0,0059	-0,0073	-0,0050	-0,0045	-0,0096	1
4	25/03/1997	-0,0388	-0,0314	-0,0099	-0,0181	-0,0096	-0,0134	-0,0099	-0,0046	0
4	29/09/1998	0,0976	0,0864	0,0402	0,0603	0,0385	0,0407	0,0209	0,0237	0
4	15/10/1998	0,1024	0,0950	0,0455	0,0556	0,0336	0,0215	0,0223	0,0373	0
4	17/11/1998	0,0188	-0,0013	-0,0066	-0,0041	-0,0078	-0,0089	-0,0119	-0,0120	1
4	30/06/1999	-0,0072	-0,0101	-0,0014	0,0126	0,0099	-0,0016	-0,0035	0,0075	1
4	24/08/1999	-0,0756	-0,0717	-0,0263	-0,0276	-0,0165	-0,0149	-0,0089	-0,0139	1
4	16/11/1999	-0,0225	-0,0106	-0,0009	-0,0020	0,0012	0,0008	-0,0039	-0,0046	1
4	02/02/2000	0,0163	-0,0126	-0,0123	-0,0107	-0,0022	-0,0088	-0,0060	0,0025	1
4	31/03/2000	0,0862	0,0903	0,0407	0,0634	0,0598	0,0321	0,0389	0,0627	1
4	16/05/2000	-0,0057	-0,0075	-0,0157	-0,0303	-0,0265	-0,0124	-0,0111	-0,0253	0
4	03/01/2001	0,0413	0,0446	0,0360	0,0369	0,0228	0,0133	-0,0107	-0,0036	0

4	31/01/2001	-0,0002	0,0113	0,0259	0,0220	0,0221	0,0208	0,0106	0,0150	0
4	20/03/2001	-0,0464	-0,0377	-0,0624	-0,0442	-0,0570	-0,0413	-0,0090	-0,0309	0
4	18/04/2001	0,0079	0,0203	0,0332	0,0288	0,0329	0,0170	0,0068	0,0202	0
4	15/05/2001	0,0043	0,0052	-0,0083	-0,0058	-0,0094	0,0051	0,0057	-0,0127	0
4	27/06/2001	-0,0340	-0,0355	-0,0204	-0,0102	-0,0010	0,0028	0,0133	0,0142	0
4	21/08/2001	-0,0566	-0,0656	-0,0022	-0,0321	0,0012	0,0070	0,0032	-0,0016	0
4	17/09/2001	-0,0415	-0,0443	-0,0741	-0,0629	-0,0791	-0,0581	-0,0525	-0,0744	0
4	02/10/2001	-0,0425	-0,0484	-0,0157	0,0052	0,0079	-0,0103	0,0070	0,0223	0
4	06/11/2001	0,0192	0,0084	0,0064	0,0127	0,0074	0,0002	-0,0041	0,0007	0
4	11/12/2001	0,0256	0,0210	0,0161	0,0213	0,0105	0,0099	-0,0025	0,0031	0
4	06/11/2002	0,1036	0,1211	0,0781	0,0851	0,0538	0,0356	0,0045	0,0268	0
4	25/06/2003	-0,0020	-0,0057	-0,0092	-0,0115	-0,0080	-0,0071	-0,0049	-0,0037	1
4	30/06/2004	0,0073	0,0111	0,0134	0,0041	0,0108	0,0110	0,0011	0,0007	1
4	10/08/2004	-0,0113	-0,0140	0,0009	-0,0094	-0,0069	-0,0090	-0,0071	-0,0038	1
4	21/09/2004	0,0067	0,0095	0,0057	0,0028	0,0049	0,0008	0,0000	0,0048	1
4	10/11/2004	-0,0040	-0,0087	-0,0040	-0,0052	-0,0017	-0,0046	-0,0015	-0,0003	1
4	14/12/2004	-0,0226	-0,0195	-0,0104	-0,0159	-0,0091	-0,0074	-0,0002	-0,0037	1
4	02/02/2005	-0,0021	0,0054	0,0094	0,0065	0,0085	0,0084	0,0028	0,0007	1
4	22/03/2005	-0,0166	-0,0140	-0,0093	-0,0123	-0,0102	-0,0077	-0,0031	-0,0077	1
4	03/05/2005	0,0017	-0,0002	0,0045	-0,0002	-0,0028	0,0015	0,0023	0,0007	1
4	30/06/2005	0,0097	0,0082	0,0030	0,0072	0,0004	0,0013	-0,0010	0,0008	1
4	09/08/2005	-0,0001	-0,0011	-0,0048	-0,0002	-0,0042	-0,0061	-0,0015	0,0008	1
4	20/09/2005	-0,0042	-0,0110	0,0022	-0,0044	0,0058	-0,0017	-0,0018	0,0059	1
4	01/11/2005	-0,0114	-0,0070	-0,0027	-0,0017	0,0022	0,0057	0,0045	0,0030	1
4	13/12/2005	0,0179	0,0194	0,0145	0,0117	0,0090	-0,0006	-0,0001	0,0087	1
4	31/01/2006	0,0290	0,0276	0,0232	0,0134	0,0132	0,0131	0,0047	0,0059	1
4	28/03/2006	0,0003	-0,0019	-0,0063	-0,0031	-0,0072	-0,0028	-0,0023	-0,0087	1
4	10/05/2006	-0,0153	-0,0145	-0,0133	-0,0087	-0,0128	-0,0066	-0,0105	-0,0181	1
4	29/06/2006	-0,0191	-0,0158	-0,0056	-0,0132	-0,0051	-0,0047	-0,0011	-0,0021	0
4	18/09/2007	-0,0051	-0,0097	-0,0050	-0,0091	-0,0065	-0,0026	0,0030	0,0012	0
4	31/10/2007	0,0077	0,0099	0,0077	0,0079	0,0009	0,0035	0,0040	0,0043	0
4	11/12/2007	-0,0182	-0,0165	-0,0063	-0,0128	-0,0037	-0,0044	-0,0079	-0,0074	0
4	22/01/2008	0,0032	0,0017	0,0088	0,0176	0,0163	0,0028	-0,0011	0,0147	0
4	30/01/2008	0,0012	0,0103	0,0188	0,0211	0,0238	0,0235	0,0161	0,0198	0
4	18/03/2008	-0,0102	-0,0076	-0,0116	-0,0007	-0,0047	-0,0126	-0,0108	-0,0043	0
4	30/04/2008	0,0236	0,0156	0,0129	0,0176	0,0188	0,0091	0,0003	0,0124	0
4	08/10/2008	-0,0427	-0,0470	-0,0505	-0,0390	-0,0317	-0,0360	-0,0012	-0,0075	0
4	29/10/2008	-0,0274	-0,0075	-0,0174	-0,0244	-0,0166	0,0163	0,0341	0,0019	0
4	16/12/2008	0,1001	0,1075	0,0460	0,0857	0,0487	0,0323	0,0203	0,0307	1
4	16/12/2015	-0,0028	-0,0023	-0,0014	0,0099	0,0092	0,0097	0,0065	0,0090	1
4	14/12/2016	0,0008	0,0019	-0,0024	0,0002	0,0022	-0,0032	-0,0036	0,0022	1
4	15/03/2017	0,0075	0,0100	0,0072	0,0093	0,0117	0,0116	0,0068	0,0090	1
4	14/06/2017	-0,0071	-0,0092	-0,0110	-0,0158	-0,0125	-0,0077	-0,0001	-0,0057	1
4	13/12/2017	-0,0227	-0,0263	-0,0120	-0,0056	-0,0040	-0,0023	-0,0028	-0,0049	1
4	21/03/2018	0,0137	0,0157	0,0123	0,0023	0,0062	0,0060	0,0043	0,0035	1
4	13/06/2018	0,0171	0,0141	0,0036	0,0141	0,0094	0,0042	-0,0027	0,0028	1

4	26/09/2018	-0,0048	-0,0008	-0,0074	-0,0141	-0,0148	-0,0131	-0,0038	-0,0096	1
4	19/12/2018	-0,0169	-0,0186	-0,0248	-0,0068	-0,0186	-0,0149	-0,0124	-0,0125	0
4	31/07/2019	-0,0021	0,0052	0,0081	0,0052	0,0052	0,0056	0,0049	0,0061	0
4	18/09/2019	0,0022	0,0057	0,0067	-0,0022	0,0035	0,0064	0,0036	0,0009	0
4	30/10/2019	-0,0183	-0,0105	-0,0058	-0,0138	-0,0128	-0,0062	0,0022	-0,0055	0
4	03/03/2020	-0,0284	-0,0242	-0,0454	-0,0518	-0,0484	-0,0186	-0,0060	-0,0375	0
4	15/03/2020	-0,0179	-0,0193	-0,0152	-0,0263	-0,0191	-0,0644	-0,0265	0,0133	1
4	16/03/2022	0,0161	0,0083	0,0074	0,0001	0,0004	-0,0076	-0,0048	0,0001	1
4	04/05/2022	0,0213	0,0110	0,0062	0,0081	0,0059	-0,0004	0,0035	0,0130	1
4	15/06/2022	-0,0530	-0,0521	-0,0412	-0,0534	-0,0404	-0,0501	-0,0234	-0,0147	1
4	27/07/2022	0,0126	0,0209	0,0110	0,0120	0,0093	0,0082	0,0078	0,0056	1
4	21/09/2022	-0,0301	-0,0330	-0,0197	-0,0294	-0,0210	-0,0248	-0,0222	-0,0136	1
4	02/11/2022	0,0535	0,0539	0,0442	0,0517	0,0427	0,0427	0,0249	0,0289	1
4	14/12/2022	0,0188	0,0114	0,0065	0,0160	0,0046	0,0003	-0,0031	0,0025	1
4	01/02/2023	-0,0123	-0,0265	-0,0264	-0,0122	-0,0155	-0,0129	-0,0067	-0,0091	1
4	22/03/2023	-0,0330	-0,0316	-0,0226	-0,0225	-0,0233	-0,0135	-0,0042	-0,0134	1
4	03/05/2023	-0,0552	-0,0589	-0,0250	-0,0340	-0,0242	-0,0175	-0,0094	-0,0198	1
4	26/06/2023	0,0200	0,0336	0,0185	0,0031	0,0173	0,0107	0,0097	0,0180	0
5	18/03/1980	0,0636	0,0738	0,0934	0,0894	0,0870	0,0277	0,0190	0,0826	0
5	15/05/1980	0,0842	0,1164	0,1420	0,1151	0,1200	0,1215	0,0853	0,0903	0
5	05/06/1980	0,1073	0,0825	-0,0047	0,0054	-0,0145	-0,0410	-0,0168	-0,0090	1
5	07/08/1980	0,0210	0,0187	0,0092	0,0069	-0,0087	0,0087	-0,0098	-0,0281	1
5	16/09/1980	-0,0543	-0,0534	-0,0157	-0,0025	-0,0035	0,0343	0,0380	0,0108	1
5	13/10/1980	-0,0834	-0,1243	-0,0759	-0,0652	-0,0425	-0,0265	-0,0190	-0,0383	1
5	21/11/1980	-0,0494	-0,0411	0,0102	0,0059	0,0326	0,0443	0,0020	0,0005	1
5	05/12/1980	-0,0224	0,0120	-0,0497	-0,0771	-0,0612	-0,0440	-0,0387	-0,0462	0
5	21/12/1980	-0,0039	-0,0078	-0,0221	0,0145	0,0186	-0,0304	-0,0232	0,0263	1
5	03/02/1981	0,0953	0,0451	0,0182	0,0080	-0,0043	0,0169	0,0121	-0,0177	0
5	28/04/1981	-0,0043	-0,0105	-0,0662	-0,0523	-0,0795	-0,0404	-0,0146	-0,0652	1
5	18/05/1981	-0,0540	-0,0375	-0,0231	-0,0081	0,0168	0,0211	0,0318	0,0230	0
5	17/11/1981	0,0093	-0,0053	0,0045	0,0023	0,0218	-0,0196	-0,0358	0,0081	0
5	22/12/1981	0,0316	0,0116	0,0104	0,0163	0,0299	0,0190	0,0018	0,0086	1
5	30/03/1982	0,0159	-0,0078	0,0030	-0,0105	-0,0090	-0,0048	0,0057	-0,0004	0
5	15/07/1982	0,0146	-0,0100	-0,0063	-0,0204	-0,0065	0,0146	-0,0076	-0,0238	0
5	24/08/1982	0,1122	0,1119	0,1306	0,1389	0,1258	0,0861	0,0208	0,0689	0
5	16/11/1982	0,0669	0,0055	0,0686	0,0389	0,0317	0,0255	0,0107	0,0259	0
5	21/12/1982	-0,1390	-0,1715	-0,0750	-0,0878	-0,0538	-0,0449	0,0077	-0,0159	1
5	24/05/1983	0,1559	0,1524	0,1070	0,0831	0,0747	0,0574	0,0168	0,0396	1
5	23/08/1983	0,0228	0,0329	0,0193	0,0075	0,0055	-0,0229	-0,0404	-0,0013	0
5	04/10/1983	-0,0095	-0,0183	-0,0387	-0,0515	-0,0345	-0,0086	-0,0058	-0,0288	1
5	29/03/1984	-0,0123	-0,0235	-0,0213	-0,0146	-0,0247	-0,0051	0,0067	-0,0086	1
5	17/07/1984	0,0717	0,0197	0,0023	0,0322	0,0013	0,0071	0,0245	0,0085	1
5	21/08/1984	-0,0238	-0,0022	-0,0479	-0,0040	-0,0171	-0,0242	-0,0089	-0,0056	0
5	02/10/1984	0,0171	0,0193	0,0268	0,0058	0,0102	0,0277	0,0182	0,0046	0
5	07/11/1984	-0,0641	-0,0465	-0,0249	-0,0263	-0,0182	0,0038	-0,0019	-0,0139	1
5	18/12/1984	0,0179	0,0355	0,0174	0,0190	0,0156	0,0142	0,0077	0,0164	0

5	26/03/1985	-0,0253	-0,0191	-0,0270	-0,0024	-0,0194	-0,0055	0,0031	-0,0070	0
5	20/05/1985	-0,0314	-0,0119	-0,0112	0,0151	0,0100	0,0223	0,0177	0,0032	0
5	20/08/1985	-0,0657	-0,0487	-0,0048	-0,0270	0,0017	0,0111	0,0004	-0,0048	1
5	17/12/1985	0,0599	0,0639	0,0314	0,0307	0,0254	0,0201	0,0196	0,0156	0
5	18/04/1986	-0,0561	-0,0661	-0,0403	-0,0491	-0,0525	-0,0276	0,0020	-0,0322	0
5	21/08/1986	-0,0724	-0,0532	-0,0143	0,0093	0,0013	-0,0087	-0,0028	-0,0017	0
5	16/12/1986	0,0657	0,0667	0,0085	0,0526	0,0291	0,0418	0,0515	0,0464	1
5	19/05/1987	0,0010	0,0291	0,0521	0,0331	0,0454	0,0277	0,0122	0,0493	1
5	22/09/1987	0,0508	0,0285	0,0360	0,0148	0,0270	0,0040	-0,0124	0,0076	0
5	04/11/1987	-0,0565	-0,0399	-0,0158	0,0248	0,0209	0,0141	0,0100	0,0187	0
5	10/02/1988	0,0379	0,0391	0,0628	0,0069	0,0191	-0,0081	0,0283	0,0509	1
5	29/03/1988	0,0573	0,0786	0,0692	0,0506	0,0502	0,0105	-0,0217	0,0224	1
5	16/08/1988	-0,0332	-0,0317	-0,0565	-0,0292	-0,0380	-0,0393	-0,0237	-0,0334	1
5	14/12/1988	-0,0302	-0,0242	-0,0385	-0,0117	-0,0178	-0,0147	-0,0072	-0,0236	1
5	19/12/1989	-0,0161	-0,0145	0,0191	0,0079	0,0117	0,0050	0,0108	0,0289	0
5	01/01/1990	-0,0327	-0,0309	-0,0048	-0,0206	-0,0116	0,0118	0,0137	-0,0148	0
5	13/07/1990	-0,0760	-0,0579	-0,0103	-0,0840	-0,0168	-0,0119	-0,0380	-0,0437	0
5	29/10/1990	-0,0010	-0,0073	-0,0598	0,0050	-0,0264	-0,0222	-0,0234	-0,0221	0
5	14/11/1990	0,0588	0,0580	0,0545	0,0823	0,0482	0,0291	0,0310	0,0565	0
5	07/12/1990	0,0686	0,0575	0,0348	0,0237	0,0173	0,0124	-0,0049	-0,0102	0
5	19/12/1990	0,0613	0,0406	0,0094	0,0027	0,0013	0,0055	0,0240	0,0247	0
5	08/01/1991	0,0258	0,0358	0,0505	0,0488	0,0468	0,0269	0,0061	0,0415	0
5	01/02/1991	0,0277	0,0300	0,0241	0,0176	0,0109	0,0254	0,0283	0,0097	0
5	08/03/1991	-0,0123	-0,0263	-0,0248	0,0105	-0,0080	0,0053	-0,0080	-0,0280	0
5	30/04/1991	-0,0518	-0,0339	0,0117	0,0077	0,0074	0,0164	-0,0005	-0,0061	0
5	06/08/1991	0,0086	-0,0121	-0,0330	-0,0191	-0,0328	-0,0265	-0,0172	-0,0228	0
5	13/09/1991	0,0005	0,0049	0,0035	-0,0079	-0,0057	0,0075	0,0169	0,0008	0
5	10/10/1991	-0,0288	-0,0338	-0,0557	-0,0365	-0,0503	-0,0216	-0,0228	-0,0442	0
5	06/11/1991	-0,0315	-0,0043	0,0315	0,0131	0,0274	0,0256	0,0254	0,0171	0
5	11/12/1991	0,0039	-0,0070	-0,0037	0,0486	0,0156	-0,0075	0,0185	0,0397	0
5	20/12/1991	0,0276	0,0415	0,0423	0,0604	0,0533	0,0645	0,0435	0,0370	0
5	09/04/1992	-0,0739	-0,0669	-0,0451	-0,0738	-0,0486	-0,0125	0,0084	-0,0381	0
5	02/07/1992	0,0905	0,0865	-0,0081	0,0407	0,0133	0,0064	-0,0105	0,0015	0
5	04/09/1992	-0,0374	-0,0367	-0,0289	0,0064	-0,0073	-0,0048	-0,0132	-0,0127	1
5	04/02/1994	0,0191	0,0255	0,0018	0,0460	0,0400	0,0202	0,0314	0,0451	1
5	22/03/1994	-0,0807	-0,0843	-0,0436	-0,0502	-0,0424	-0,0281	-0,0145	-0,0397	1
5	18/04/1994	-0,0606	-0,0537	-0,0037	0,0058	-0,0055	-0,0431	-0,0385	-0,0010	1
5	17/05/1994	-0,0288	-0,0009	-0,0340	-0,0332	-0,0506	-0,0447	-0,0447	-0,0506	1
5	16/08/1994	-0,0584	-0,0561	-0,0462	-0,0293	-0,0311	-0,0201	-0,0167	-0,0253	1
5	15/11/1994	-0,0217	-0,0206	-0,0139	-0,0269	-0,0237	-0,0169	0,0004	-0,0097	1
5	01/02/1995	-0,0037	0,0070	-0,0059	-0,0205	-0,0150	-0,0213	-0,0194	-0,0141	0
5	06/07/1995	0,0323	0,0286	0,0088	0,0295	0,0096	0,0081	0,0037	0,0069	0
5	19/12/1995	0,0160	0,0142	0,0192	0,0087	0,0077	0,0153	-0,0050	-0,0003	0
5	31/01/1996	-0,0579	-0,0302	-0,0395	-0,0592	-0,0558	-0,0377	-0,0128	-0,0330	1
5	25/03/1997	0,0456	0,0442	0,0147	0,0289	0,0186	0,0179	0,0154	0,0164	0
5	29/09/1998	0,0558	0,0436	-0,0314	-0,0129	-0,0421	0,0116	0,0100	-0,0352	0

5	15/10/1998	0,0663	0,0554	0,0641	0,0660	0,0573	0,0277	0,0353	0,0947	0
5	17/11/1998	0,1092	0,0248	-0,0155	-0,0034	-0,0122	-0,0140	-0,0028	-0,0079	1
5	30/06/1999	-0,0475	-0,0483	0,0021	-0,0115	0,0033	0,0142	0,0081	0,0011	1
5	24/08/1999	-0,0511	-0,0564	-0,0292	0,0389	-0,0020	-0,0009	0,0065	-0,0053	1
5	16/11/1999	-0,0011	0,0639	0,0294	0,0229	0,0247	-0,0074	0,0125	0,0288	1
5	02/02/2000	0,0741	0,0089	-0,0101	-0,0067	0,0223	0,0287	0,0195	0,0123	1
5	31/03/2000	0,0915	0,1289	0,0807	0,0618	0,0655	0,0199	0,0512	0,0756	1
5	16/05/2000	-0,0073	0,0008	0,0210	0,0422	0,0155	0,0477	0,0378	0,0123	0
5	03/01/2001	0,0140	0,0433	0,0107	0,0241	-0,0067	0,0481	-0,0041	-0,0629	0
5	31/01/2001	-0,0491	-0,0381	0,0142	0,0235	0,0267	0,0337	0,0217	0,0231	0
5	20/03/2001	-0,1071	-0,0857	-0,0812	-0,0628	-0,0729	-0,0806	-0,0294	-0,0284	0
5	18/04/2001	-0,0454	-0,0223	-0,0335	-0,0341	-0,0344	-0,0496	-0,0185	-0,0279	0
5	15/05/2001	0,0248	0,0304	0,0234	0,0314	0,0277	0,0176	0,0226	0,0259	0
5	27/06/2001	0,0774	0,0677	0,0432	0,0523	0,0370	0,0129	-0,0010	0,0257	0
5	21/08/2001	-0,0525	-0,0675	-0,0138	-0,0514	-0,0104	-0,0290	-0,0270	-0,0119	0
5	17/09/2001	-0,0975	-0,0987	-0,0222	-0,0479	-0,0163	-0,0434	-0,0707	-0,0212	0
5	02/10/2001	-0,0823	-0,1039	-0,0488	-0,0411	-0,0371	0,0006	-0,0267	-0,0567	0
5	06/11/2001	-0,0531	-0,0272	-0,0261	-0,0252	-0,0120	-0,0453	-0,0242	0,0112	0
5	11/12/2001	0,0103	-0,0103	0,0166	-0,0164	-0,0068	-0,0166	-0,0040	-0,0004	0
5	06/11/2002	-0,0458	-0,0060	-0,0153	-0,0518	-0,0139	0,0076	0,0109	-0,0123	0
5	25/06/2003	0,0462	0,0338	0,0270	0,0086	0,0158	0,0080	0,0176	0,0233	1
5	30/06/2004	-0,0542	-0,0534	-0,0375	-0,0275	-0,0215	-0,0250	-0,0140	-0,0154	1
5	10/08/2004	-0,0793	-0,0931	-0,0555	-0,0606	-0,0408	-0,0389	-0,0251	-0,0188	1
5	21/09/2004	-0,0954	-0,0927	-0,0673	-0,0498	-0,0438	-0,0226	-0,0004	-0,0198	1
5	10/11/2004	0,1273	0,1371	0,0989	0,0703	0,0491	0,0403	0,0242	0,0310	1
5	14/12/2004	0,0513	0,0499	0,0323	0,0094	0,0079	0,0118	0,0068	0,0035	1
5	02/02/2005	0,0516	0,0570	0,0273	0,0455	0,0260	0,0338	0,0216	0,0072	1
5	22/03/2005	0,0116	0,0083	0,0294	0,0034	0,0203	0,0220	0,0124	0,0194	1
5	03/05/2005	-0,1007	-0,0894	-0,0200	-0,0272	-0,0111	-0,0052	0,0020	0,0036	1
5	30/06/2005	0,0167	0,0038	-0,0176	-0,0043	-0,0248	-0,0168	0,0025	-0,0095	1
5	09/08/2005	0,0070	-0,0009	0,0006	-0,0012	-0,0102	-0,0001	0,0004	-0,0070	1
5	20/09/2005	-0,0099	-0,0170	-0,0037	-0,0085	0,0007	-0,0060	-0,0065	0,0067	1
5	01/11/2005	-0,0105	-0,0078	0,0158	0,0091	0,0062	-0,0120	0,0071	0,0214	1
5	13/12/2005	-0,0064	-0,0027	0,0101	0,0223	0,0187	0,0087	-0,0041	0,0070	1
5	31/01/2006	0,0466	0,0479	0,0434	0,0472	0,0388	0,0324	0,0085	0,0167	1
5	28/03/2006	-0,0367	-0,0306	-0,0373	-0,0297	-0,0369	-0,0294	-0,0151	-0,0339	1
5	10/05/2006	-0,0608	-0,0692	-0,0357	-0,0330	-0,0265	-0,0235	-0,0105	-0,0193	1
5	29/06/2006	-0,0304	-0,0229	-0,0054	0,0100	0,0074	0,0038	0,0080	0,0136	0
5	18/09/2007	-0,0500	-0,0470	-0,0380	-0,0089	-0,0151	-0,0235	-0,0132	-0,0036	0
5	31/10/2007	-0,0001	-0,0084	-0,0045	-0,0067	-0,0039	-0,0077	0,0084	0,0075	0
5	11/12/2007	0,0094	-0,0060	0,0245	0,0140	0,0380	0,0440	0,0110	0,0076	0
5	22/01/2008	-0,0161	-0,0134	0,0329	0,0268	0,0328	0,0189	-0,0133	0,0047	0
5	30/01/2008	0,0194	0,0443	0,0412	-0,0090	0,0051	0,0084	0,0196	0,0158	0
5	18/03/2008	-0,0341	-0,0252	-0,0214	-0,0172	-0,0086	-0,0109	0,0049	0,0128	0
5	30/04/2008	-0,0298	-0,0245	-0,0119	-0,0157	0,0024	0,0241	0,0045	-0,0198	0
5	08/10/2008	-0,1209	-0,1254	-0,0559	-0,1017	-0,0434	-0,0618	-0,0143	-0,0043	0

5	29/10/2008	-0,1162	-0,0774	-0,0764	-0,1063	-0,0903	-0,0389	0,0194	-0,0346	0
5	16/12/2008	0,1013	0,0996	0,0479	0,0829	0,0604	0,0516	0,0321	0,0482	1
5	16/12/2015	-0,0230	-0,0307	-0,0050	-0,0127	0,0060	0,0091	0,0060	0,0076	1
5	14/12/2016	0,0096	0,0276	0,0044	-0,0043	-0,0096	-0,0114	-0,0038	-0,0018	1
5	15/03/2017	-0,0093	-0,0139	-0,0004	-0,0122	-0,0026	0,0066	0,0046	-0,0013	1
5	14/06/2017	-0,0010	-0,0024	-0,0051	-0,0022	-0,0005	0,0086	0,0046	-0,0074	1
5	13/12/2017	0,0116	0,0052	-0,0053	-0,0111	-0,0090	-0,0021	-0,0003	-0,0067	1
5	21/03/2018	-0,0083	-0,0010	0,0072	-0,0051	0,0028	0,0012	0,0014	0,0024	1
5	13/06/2018	0,0056	-0,0008	0,0085	0,0064	0,0087	-0,0039	-0,0089	0,0012	1
5	26/09/2018	-0,0395	-0,0342	-0,0310	-0,0466	-0,0315	-0,0231	0,0010	-0,0136	1
5	19/12/2018	-0,0022	-0,0077	-0,0041	0,0118	0,0058	0,0151	0,0074	0,0041	0
5	31/07/2019	-0,0529	-0,0328	-0,0250	-0,0313	-0,0221	-0,0184	-0,0096	-0,0100	0
5	18/09/2019	0,0374	0,0512	0,0356	-0,0065	0,0046	0,0063	-0,0008	-0,0023	0
5	30/10/2019	0,0188	0,0325	0,0400	0,0063	0,0225	0,0238	0,0213	0,0220	0
5	03/03/2020	-0,0316	-0,0177	-0,0332	-0,0476	-0,0333	0,0105	0,0044	-0,0399	0
5	15/03/2020	-0,0186	-0,0073	-0,0272	-0,0235	-0,0197	-0,0913	-0,0732	-0,0255	1
5	16/03/2022	0,0140	0,0011	-0,0162	-0,0031	-0,0110	-0,0019	-0,0161	-0,0285	1
5	04/05/2022	0,0358	0,0001	0,0223	-0,0017	-0,0018	0,0094	0,0209	0,0122	1
5	15/06/2022	-0,0396	-0,0286	-0,0202	-0,0227	-0,0168	-0,0225	-0,0263	-0,0169	1
5	27/07/2022	0,0060	0,0172	-0,0050	0,0092	-0,0067	-0,0153	-0,0008	-0,0054	1
5	21/09/2022	-0,0312	-0,0258	-0,0279	-0,0027	-0,0059	-0,0133	-0,0157	-0,0017	1
5	02/11/2022	0,0630	0,0428	0,0407	0,0489	0,0360	0,0556	0,0249	0,0118	1
5	14/12/2022	-0,0364	-0,0492	-0,0326	-0,0285	-0,0294	-0,0202	-0,0103	-0,0216	1
5	01/02/2023	-0,0282	-0,0347	-0,0149	-0,0036	-0,0016	-0,0024	-0,0202	-0,0140	1
5	22/03/2023	-0,0492	-0,0410	-0,0298	-0,0274	-0,0208	-0,0092	-0,0010	-0,0115	1
5	03/05/2023	-0,0263	-0,0280	0,0223	-0,0069	0,0047	0,0079	0,0140	0,0078	1
5	26/06/2023	0,0135	0,0463	0,0649	0,0207	0,0530	0,0440	0,0268	0,0290	0
6	18/03/1980	0,0235	0,0238	0,0394	0,0342	0,0447	0,0302	0,0307	0,0403	0
6	15/05/1980	0,1031	0,0885	0,0448	0,0301	0,0018	0,0182	0,0063	-0,0065	0
6	05/06/1980	0,0532	0,0202	0,0204	0,0343	0,0342	0,0199	0,0102	0,0246	1
6	07/08/1980	0,0564	0,0300	0,0066	0,0204	0,0055	0,0260	0,0272	0,0017	1
6	16/09/1980	-0,0825	-0,0643	-0,0393	-0,0459	-0,0299	-0,0167	-0,0057	-0,0324	1
6	13/10/1980	-0,1026	-0,1036	-0,0389	-0,0336	-0,0236	-0,0321	-0,0184	-0,0128	1
6	21/11/1980	-0,0663	-0,0662	-0,0608	-0,0490	-0,0393	-0,0155	-0,0017	-0,0237	1
6	05/12/1980	0,0125	0,0287	-0,0162	0,0129	-0,0227	-0,0336	-0,0193	-0,0056	0
6	21/12/1980	0,0813	0,0764	0,0492	0,0978	0,0665	0,0427	0,0475	0,0662	1
6	03/02/1981	0,0433	0,0046	-0,0174	-0,0153	-0,0049	-0,0027	0,0116	0,0062	0
6	28/04/1981	-0,0386	-0,0360	-0,0530	-0,0518	-0,0552	-0,0412	-0,0579	-0,0737	1
6	18/05/1981	-0,0538	-0,0810	-0,0182	-0,0107	0,0019	-0,0185	-0,0173	0,0049	0
6	17/11/1981	-0,0137	-0,0310	-0,0202	0,0046	0,0114	-0,0040	0,0059	0,0128	0
6	22/12/1981	0,0470	0,0313	0,0253	0,0221	0,0268	0,0066	0,0224	0,0349	1
6	30/03/1982	0,0435	0,0351	0,0292	0,0251	0,0252	0,0229	0,0168	0,0167	0
6	15/07/1982	-0,0382	-0,0468	-0,0062	-0,0220	-0,0016	0,0250	0,0090	-0,0278	0
6	24/08/1982	0,0085	0,0207	0,0309	0,0438	0,0472	0,0440	0,0177	0,0288	0
6	16/11/1982	0,0252	-0,0279	-0,0103	0,0023	-0,0104	-0,0196	0,0020	0,0104	0
6	21/12/1982	-0,1331	-0,1352	-0,0781	-0,0889	-0,0660	-0,0426	-0,0174	-0,0451	1

6	24/05/1983	0,0639	0,0866	0,0417	0,0528	0,0171	0,0007	0,0095	0,0183	1
6	23/08/1983	-0,1154	-0,1063	-0,0647	-0,0846	-0,0584	-0,0664	-0,0455	-0,0276	0
6	04/10/1983	-0,0557	-0,0473	-0,0150	-0,0085	-0,0023	0,0055	-0,0018	-0,0069	1
6	29/03/1984	0,0062	-0,0016	-0,0237	-0,0106	-0,0211	-0,0190	0,0096	0,0075	1
6	17/07/1984	0,0195	-0,0003	0,0273	0,0250	0,0217	0,0043	-0,0054	0,0094	1
6	21/08/1984	-0,0716	-0,0772	-0,0507	-0,0501	-0,0279	-0,0480	-0,0052	0,0114	0
6	02/10/1984	-0,0611	-0,0620	-0,0358	-0,0137	-0,0302	-0,0435	-0,0316	-0,0157	0
6	07/11/1984	-0,0497	-0,0629	-0,0720	-0,0560	-0,0537	-0,0316	-0,0138	-0,0409	1
6	18/12/1984	0,0053	0,0139	0,0144	0,0106	0,0038	0,0074	-0,0090	-0,0116	0
6	26/03/1985	-0,0064	-0,0281	-0,0301	-0,0120	-0,0353	-0,0173	-0,0008	-0,0224	0
6	20/05/1985	0,0128	0,0135	0,0565	0,0067	0,0221	0,0186	0,0187	0,0230	0
6	20/08/1985	0,0112	0,0230	0,0174	0,0316	0,0182	-0,0101	-0,0043	0,0263	1
6	17/12/1985	-0,0323	-0,0427	-0,0127	-0,0288	-0,0089	-0,0221	-0,0126	-0,0033	0
6	18/04/1986	0,0895	0,0814	0,0038	0,0118	0,0019	0,0243	0,0041	-0,0091	0
6	21/08/1986	-0,1485	-0,1159	-0,0889	-0,0914	-0,0798	-0,0686	-0,0463	-0,0698	0
6	16/12/1986	-0,0051	0,0189	-0,0074	0,0187	-0,0008	-0,0030	0,0087	0,0054	1
6	19/05/1987	0,0434	0,0553	0,0369	0,0422	0,0255	-0,0007	-0,0074	0,0264	1
6	22/09/1987	-0,1651	-0,1748	-0,0650	-0,0959	-0,0601	-0,0451	-0,0370	-0,0596	0
6	04/11/1987	-0,1020	-0,0711	0,0191	0,0378	0,0564	0,0608	0,0032	-0,0007	0
6	10/02/1988	0,1393	0,1379	0,0814	0,0916	0,0768	0,0403	0,0024	0,0457	1
6	29/03/1988	0,0154	0,0255	0,0155	0,0245	0,0029	0,0139	0,0032	-0,0224	1
6	16/08/1988	0,0475	0,0522	-0,0044	0,0253	0,0108	0,0054	0,0067	0,0016	1
6	14/12/1988	-0,0484	-0,0432	-0,0453	-0,0391	-0,0459	-0,0346	-0,0134	-0,0186	1
6	19/12/1989	-0,0091	-0,0059	0,0072	-0,0052	0,0065	-0,0155	0,0022	0,0257	0
6	01/01/1990	-0,0278	-0,0148	-0,0052	0,0327	0,0104	0,0393	0,0255	-0,0080	0
6	13/07/1990	-0,0769	-0,0907	-0,0275	-0,0816	-0,0326	-0,0236	-0,0302	-0,0372	0
6	29/10/1990	0,0484	0,0533	0,0340	0,0416	0,0137	0,0048	-0,0180	-0,0041	0
6	14/11/1990	0,1354	0,0990	0,0925	0,1104	0,0857	0,0324	0,0314	0,0876	0
6	07/12/1990	0,1433	0,1353	0,0587	0,0339	0,0064	0,0142	-0,0092	-0,0211	0
6	19/12/1990	0,1023	0,0922	0,0097	0,0638	0,0228	-0,0122	0,0051	0,0404	0
6	08/01/1991	0,1102	0,1169	0,0428	0,0861	0,0454	0,0779	0,0541	0,0102	0
6	01/02/1991	0,0994	0,0892	0,0403	0,0666	0,0657	0,0607	0,0180	0,0209	0
6	08/03/1991	0,0623	0,0604	0,0422	0,0512	0,0398	0,0171	0,0045	0,0184	0
6	30/04/1991	-0,0215	-0,0300	-0,0412	-0,0277	-0,0107	-0,0136	-0,0450	-0,0125	0
6	06/08/1991	-0,0737	-0,0875	-0,0547	-0,0238	-0,0187	0,0102	0,0207	-0,0090	0
6	13/09/1991	-0,1167	-0,1034	-0,0456	-0,0416	-0,0209	-0,0154	0,0064	-0,0048	0
6	10/10/1991	-0,0325	-0,0395	-0,0529	-0,0366	-0,0301	-0,0192	-0,0026	-0,0134	0
6	06/11/1991	0,0103	0,0159	0,0187	0,0156	0,0252	0,0234	0,0153	0,0240	0
6	11/12/1991	0,0244	0,0127	-0,0469	-0,0262	-0,0468	-0,0328	-0,0255	-0,0397	0
6	20/12/1991	0,0539	0,0610	0,0038	0,0525	0,0250	-0,0102	-0,0128	0,0313	0
6	09/04/1992	-0,1356	-0,1258	-0,1129	-0,1124	-0,0836	-0,0440	-0,0159	-0,0688	0
6	02/07/1992	-0,0303	0,0031	-0,0046	0,0004	-0,0115	-0,0106	-0,0213	-0,0157	0
6	04/09/1992	0,1074	0,1010	0,0209	0,0690	0,0087	0,0094	-0,0020	-0,0052	1
6	04/02/1994	0,1088	0,0927	0,0566	0,0698	0,0595	0,0440	0,0381	0,0539	1
6	22/03/1994	0,0315	0,0239	0,0282	0,0249	0,0348	0,0103	0,0347	0,0494	1
6	18/04/1994	0,0038	-0,0355	-0,0063	-0,0479	-0,0255	-0,0414	-0,0126	-0,0076	1

6	17/05/1994	-0,0411	-0,0297	-0,0403	-0,0245	-0,0138	-0,0031	0,0029	-0,0078	1
6	16/08/1994	0,0379	0,0446	0,0396	0,0470	0,0410	0,0265	0,0147	0,0301	1
6	15/11/1994	-0,0020	0,0017	0,0411	-0,0292	0,0033	0,0003	0,0012	0,0102	1
6	01/02/1995	-0,0076	0,0004	0,0073	0,0044	0,0022	0,0067	0,0002	-0,0043	0
6	06/07/1995	0,0267	-0,0009	0,0187	0,0317	0,0271	0,0062	-0,0030	0,0172	0
6	19/12/1995	-0,0423	-0,0334	-0,0145	-0,0247	-0,0138	-0,0189	-0,0291	-0,0129	0
6	31/01/1996	0,0654	0,0779	0,0407	0,0384	0,0237	0,0058	0,0138	0,0284	1
6	25/03/1997	0,0580	0,0379	0,0451	0,0247	0,0286	0,0053	-0,0081	0,0153	0
6	29/09/1998	-0,0272	-0,0477	-0,0455	0,0084	-0,0239	-0,0123	-0,0097	-0,0013	0
6	15/10/1998	-0,0023	0,0256	0,0487	0,0185	0,0361	0,0430	0,0325	0,0385	0
6	17/11/1998	-0,0190	-0,0237	-0,0176	0,0006	0,0022	-0,0153	-0,0088	0,0069	1
6	30/06/1999	-0,0326	-0,0408	-0,0125	-0,0518	-0,0291	-0,0273	-0,0356	-0,0366	1
6	24/08/1999	-0,0443	-0,0384	-0,0080	0,0043	-0,0222	-0,0296	-0,0221	-0,0237	1
6	16/11/1999	-0,0739	-0,0556	0,0213	-0,0577	0,0246	-0,0205	-0,0191	0,0281	1
6	02/02/2000	-0,0531	-0,0606	-0,0383	-0,0304	-0,0004	0,0469	0,0371	-0,0179	1
6	31/03/2000	0,2822	0,2755	0,1797	0,2089	0,2102	0,1293	0,0662	0,1344	1
6	16/05/2000	-0,1215	-0,1256	-0,0155	-0,0761	-0,0190	0,0200	-0,0070	-0,0414	0
6	03/01/2001	0,1287	0,1425	0,1034	0,0895	0,0929	0,0595	0,0198	0,0529	0
6	31/01/2001	0,0604	0,0455	0,0062	0,0290	0,0245	0,0472	0,0093	0,0123	0
6	20/03/2001	-0,0510	-0,0669	-0,0035	-0,0654	-0,0471	-0,0694	-0,0190	0,0037	0
6	18/04/2001	-0,0667	-0,0474	-0,0482	-0,0555	-0,0395	-0,0305	0,0017	0,0007	0
6	15/05/2001	0,0016	-0,0174	0,0034	-0,0032	0,0103	0,0101	-0,0021	-0,0049	0
6	27/06/2001	-0,0037	0,0046	-0,0077	0,0329	-0,0078	-0,0097	0,0017	0,0050	0
6	21/08/2001	-0,1303	-0,1017	-0,0041	-0,0850	0,0035	-0,0003	-0,0143	-0,0088	0
6	17/09/2001	-0,0186	-0,0264	-0,0857	-0,0549	-0,0912	-0,0820	-0,0557	-0,0527	0
6	02/10/2001	0,0191	-0,0049	0,0901	0,0820	0,0676	0,0261	0,0323	0,0704	0
6	06/11/2001	0,0189	-0,0017	-0,0173	-0,0007	-0,0015	-0,0009	-0,0019	-0,0018	0
6	11/12/2001	0,0202	0,0226	0,0086	0,0014	0,0116	0,0078	0,0130	0,0125	0
6	06/11/2002	-0,0226	-0,0156	-0,0519	-0,0568	-0,0600	-0,0577	-0,0057	0,0016	0
6	25/06/2003	0,0445	0,0193	0,0003	0,0143	0,0115	0,0078	0,0091	0,0112	1
6	30/06/2004	-0,0087	0,0010	-0,0148	-0,0085	-0,0099	-0,0189	-0,0155	-0,0135	1
6	10/08/2004	0,0210	0,0188	0,0026	-0,0090	-0,0026	0,0045	0,0104	0,0142	1
6	21/09/2004	0,0455	0,0528	0,0018	0,0108	0,0087	0,0099	0,0102	0,0047	1
6	10/11/2004	0,0170	-0,0102	-0,0010	-0,0281	-0,0105	-0,0055	0,0000	-0,0078	1
6	14/12/2004	-0,0148	-0,0023	-0,0075	0,0171	0,0078	-0,0002	-0,0101	-0,0034	1
6	02/02/2005	0,0047	0,0106	-0,0168	-0,0078	-0,0055	0,0017	0,0063	-0,0062	1
6	22/03/2005	-0,0244	-0,0266	-0,0078	-0,0125	0,0000	0,0131	0,0195	0,0018	1
6	03/05/2005	-0,0047	0,0125	0,0062	0,0319	0,0277	0,0164	0,0063	0,0239	1
6	30/06/2005	0,0191	0,0178	-0,0070	0,0017	-0,0006	-0,0002	-0,0030	-0,0004	1
6	09/08/2005	-0,0387	-0,0474	-0,0246	-0,0534	-0,0377	-0,0281	-0,0019	-0,0217	1
6	20/09/2005	-0,0022	-0,0014	0,0047	-0,0040	-0,0188	-0,0145	-0,0045	-0,0105	1
6	01/11/2005	0,0433	0,0153	0,0115	-0,0057	-0,0035	0,0067	0,0286	0,0103	1
6	13/12/2005	-0,0266	-0,0145	-0,0115	-0,0152	0,0030	-0,0012	-0,0050	0,0002	1
6	31/01/2006	0,0484	0,0676	0,0618	0,0441	0,0587	0,0539	0,0382	0,0483	1
6	28/03/2006	-0,0270	-0,0198	-0,0048	-0,0247	-0,0147	-0,0117	-0,0132	-0,0151	1
6	10/05/2006	-0,0530	-0,0461	-0,0290	-0,0159	-0,0145	-0,0077	-0,0208	-0,0249	1

6	29/06/2006	-0,0649	-0,0593	-0,0414	-0,0600	-0,0470	-0,0302	-0,0209	-0,0440	0
6	18/09/2007	-0,0338	-0,0446	-0,0473	-0,0181	-0,0256	-0,0288	-0,0175	-0,0301	0
6	31/10/2007	-0,0202	-0,0296	-0,0129	-0,0258	-0,0195	-0,0348	-0,0304	-0,0112	0
6	11/12/2007	-0,0293	-0,0469	-0,0218	-0,0566	-0,0222	-0,0148	-0,0400	-0,0343	0
6	22/01/2008	0,0979	0,0851	0,1272	0,1405	0,1302	0,1212	0,0857	0,0897	0
6	30/01/2008	0,1071	0,1435	0,1537	0,0367	0,0494	0,0410	0,0066	0,0140	0
6	18/03/2008	0,0497	0,0518	0,0593	0,0326	0,0609	0,0611	0,0491	0,0434	0
6	30/04/2008	-0,0600	-0,0382	-0,0285	-0,0511	-0,0117	-0,0260	-0,0252	-0,0062	0
6	08/10/2008	-0,0757	-0,0774	-0,0344	-0,0156	-0,0421	-0,0367	-0,0513	-0,0396	0
6	29/10/2008	-0,1018	-0,0691	-0,0260	-0,0823	-0,0181	0,0178	0,0327	-0,0177	0
6	16/12/2008	0,1136	0,1529	0,0994	0,0145	0,0011	0,0048	0,0046	-0,0063	1
6	16/12/2015	0,0571	0,0322	0,0169	-0,0070	-0,0144	-0,0155	-0,0081	-0,0103	1
6	14/12/2016	0,0208	0,0124	-0,0035	-0,0107	-0,0006	0,0203	0,0103	-0,0130	1
6	15/03/2017	-0,0176	-0,0208	0,0058	-0,0072	0,0119	0,0027	-0,0016	0,0116	1
6	14/06/2017	-0,0412	-0,0390	-0,0144	-0,0258	-0,0148	-0,0294	-0,0374	-0,0291	1
6	13/12/2017	0,0914	0,0673	0,0577	0,0137	0,0128	0,0054	0,0061	0,0156	1
6	21/03/2018	-0,0194	-0,0044	0,0171	0,0194	0,0397	0,0313	0,0090	0,0306	1
6	13/06/2018	0,0235	0,0100	0,0383	0,0075	0,0307	0,0161	0,0045	0,0212	1
6	26/09/2018	-0,0171	-0,0240	-0,0392	-0,0280	-0,0218	-0,0305	-0,0157	-0,0080	1
6	19/12/2018	-0,0294	-0,0099	-0,0478	0,0165	-0,0188	-0,0398	-0,0259	-0,0100	0
6	31/07/2019	0,0163	0,0134	-0,0235	0,0091	-0,0073	0,0030	-0,0061	-0,0080	0
6	18/09/2019	0,0798	0,0543	0,0600	-0,0031	0,0107	0,0001	0,0269	0,0290	0
6	30/10/2019	-0,0222	-0,0101	-0,0168	-0,0223	-0,0197	-0,0157	-0,0015	0,0004	0
6	03/03/2020	-0,0366	-0,0383	-0,1090	-0,0410	-0,1358	-0,0005	0,0143	-0,1107	0
6	15/03/2020	0,0075	-0,0063	-0,0314	-0,0347	-0,0385	-0,0671	-0,0646	-0,0207	1
6	16/03/2022	0,0363	0,0461	-0,0006	-0,0195	-0,0254	-0,0250	-0,0280	-0,0312	1
6	04/05/2022	0,0310	-0,0118	-0,0549	-0,0500	-0,0602	-0,0193	-0,0033	-0,0474	1
6	15/06/2022	-0,0378	0,0323	-0,0195	-0,0143	-0,0115	-0,0008	-0,0202	-0,0302	1
6	27/07/2022	-0,0125	-0,0065	-0,0119	-0,0031	-0,0248	-0,0227	-0,0122	-0,0177	1
6	21/09/2022	-0,0044	0,0042	-0,0043	0,0129	-0,0013	0,0044	-0,0118	-0,0089	1
6	02/11/2022	0,0553	0,0307	0,0361	0,0473	0,0310	0,0330	0,0143	0,0132	1
6	14/12/2022	-0,0282	-0,0501	-0,0325	-0,0115	-0,0189	-0,0276	-0,0087	-0,0022	1
6	01/02/2023	-0,0618	-0,0619	-0,0304	-0,0235	-0,0106	-0,0168	-0,0188	-0,0144	1
6	22/03/2023	-0,0298	-0,0150	-0,0164	-0,0129	-0,0060	-0,0140	0,0008	0,0053	1
6	03/05/2023	-0,0663	-0,0698	-0,0023	-0,0302	-0,0147	-0,0134	-0,0070	-0,0149	1
6	26/06/2023	0,0146	0,0599	0,0376	0,0149	0,0291	0,0142	0,0089	0,0260	0
7	18/03/1980	0,0020	0,0250	-0,0107	0,0339	0,0129	0,0047	-0,0128	-0,0090	0
7	15/05/1980	0,0683	0,0632	0,0395	0,0072	0,0005	-0,0060	-0,0109	-0,0006	0
7	05/06/1980	0,0393	0,0204	0,0172	0,0216	0,0161	0,0093	-0,0042	0,0110	1
7	07/08/1980	0,0092	-0,0027	-0,0099	-0,0034	-0,0130	-0,0076	-0,0005	-0,0078	1
7	16/09/1980	-0,0419	-0,0257	-0,0205	-0,0462	-0,0335	-0,0118	-0,0030	-0,0317	1
7	13/10/1980	-0,0908	-0,0988	-0,0375	-0,0296	-0,0228	-0,0136	-0,0101	-0,0219	1
7	21/11/1980	-0,0426	-0,0348	-0,0520	-0,0490	-0,0382	-0,0385	-0,0127	-0,0133	1
7	05/12/1980	0,0337	0,0516	0,0163	0,0417	0,0268	-0,0053	-0,0077	0,0295	0
7	21/12/1980	0,1047	0,1088	0,0770	0,1013	0,0817	0,0474	0,0267	0,0597	1
7	03/02/1981	0,0258	0,0079	-0,0064	0,0045	-0,0014	0,0021	0,0039	-0,0031	0

7	28/04/1981	-0,0330	-0,0305	-0,0253	-0,0088	-0,0151	-0,0038	-0,0104	-0,0313	1
7	18/05/1981	-0,0030	-0,0083	-0,0233	-0,0060	-0,0011	-0,0193	-0,0075	0,0062	0
7	17/11/1981	-0,0160	-0,0006	0,0070	-0,0171	-0,0104	0,0050	0,0011	-0,0209	0
7	22/12/1981	-0,0149	-0,0017	-0,0103	0,0059	0,0063	0,0002	0,0012	0,0062	1
7	30/03/1982	-0,0212	-0,0293	0,0068	0,0111	0,0080	0,0116	0,0070	-0,0044	0
7	15/07/1982	0,0247	0,0318	0,0219	0,0334	0,0194	0,0210	0,0108	0,0174	0
7	24/08/1982	0,0608	0,0577	0,0156	0,0212	0,0128	0,0238	0,0216	0,0071	0
7	16/11/1982	-0,0024	-0,0308	0,0250	-0,0192	0,0077	0,0228	0,0020	-0,0183	0
7	21/12/1982	-0,0934	-0,0833	-0,0504	-0,0169	-0,0260	-0,0306	-0,0172	-0,0191	1
7	24/05/1983	-0,0380	-0,0325	-0,0217	-0,0283	-0,0229	-0,0154	0,0029	-0,0089	1
7	23/08/1983	-0,0361	-0,0295	-0,0272	-0,0162	-0,0209	-0,0175	-0,0138	-0,0183	0
7	04/10/1983	-0,0104	-0,0254	-0,0108	-0,0232	-0,0092	0,0013	-0,0031	-0,0119	1
7	29/03/1984	-0,0210	-0,0201	-0,0098	-0,0088	-0,0134	0,0017	0,0027	-0,0158	1
7	17/07/1984	0,0423	0,0410	0,0137	0,0358	0,0194	0,0039	-0,0048	0,0146	1
7	21/08/1984	0,0801	0,0678	0,0169	0,0288	0,0173	0,0117	0,0084	0,0124	0
7	02/10/1984	0,0290	0,0303	-0,0010	-0,0004	-0,0111	0,0000	-0,0017	-0,0138	0
7	07/11/1984	-0,0208	-0,0084	-0,0068	-0,0014	-0,0043	0,0019	0,0033	-0,0064	1
7	18/12/1984	0,0214	0,0247	0,0206	0,0268	0,0264	0,0174	0,0190	0,0264	0
7	26/03/1985	-0,0136	-0,0065	-0,0071	-0,0100	-0,0094	-0,0021	0,0008	-0,0052	0
7	20/05/1985	-0,0352	-0,0394	-0,0241	-0,0210	-0,0243	-0,0147	-0,0101	-0,0201	0
7	20/08/1985	-0,0626	-0,0409	-0,0127	-0,0108	-0,0031	-0,0083	-0,0074	-0,0051	1
7	17/12/1985	0,0224	0,0181	0,0051	0,0272	0,0141	0,0017	0,0010	0,0101	0
7	18/04/1986	-0,0724	-0,0647	-0,0417	-0,0461	-0,0359	-0,0162	-0,0039	-0,0286	0
7	21/08/1986	-0,0462	-0,0278	-0,0006	-0,0241	-0,0066	-0,0012	-0,0040	-0,0056	0
7	16/12/1986	0,0431	0,0427	0,0196	0,0279	0,0064	-0,0037	-0,0069	0,0026	1
7	19/05/1987	-0,0112	-0,0007	-0,0197	0,0019	-0,0045	-0,0084	-0,0061	-0,0021	1
7	22/09/1987	-0,0354	-0,0398	-0,0027	0,0191	0,0109	0,0064	0,0057	0,0121	0
7	04/11/1987	-0,0418	-0,0508	0,0014	0,0192	0,0161	0,0164	0,0045	0,0039	0
7	10/02/1988	0,0504	0,0255	0,0169	0,0046	0,0023	-0,0018	-0,0112	-0,0050	1
7	29/03/1988	0,0077	0,0118	-0,0060	0,0188	0,0013	0,0056	-0,0010	-0,0093	1
7	16/08/1988	-0,0014	-0,0019	-0,0107	-0,0082	-0,0143	-0,0033	0,0073	-0,0059	1
7	14/12/1988	0,0102	0,0180	-0,0129	0,0122	-0,0088	-0,0049	-0,0098	-0,0172	1
7	19/12/1989	-0,0370	-0,0239	-0,0087	-0,0045	-0,0046	-0,0074	0,0041	0,0109	0
7	01/01/1990	-0,0313	-0,0249	-0,0008	0,0052	0,0073	0,0132	0,0057	0,0019	0
7	13/07/1990	0,0195	0,0219	0,0178	0,0045	0,0138	0,0098	0,0130	0,0269	0
7	29/10/1990	0,0743	0,0818	0,0381	0,0717	0,0500	0,0255	0,0027	0,0418	0
7	14/11/1990	0,1310	0,1224	0,1121	0,0966	0,0700	0,0533	0,0309	0,0461	0
7	07/12/1990	0,0894	0,0542	0,0326	0,0084	0,0196	0,0164	-0,0064	-0,0069	0
7	19/12/1990	0,0124	-0,0096	0,0176	0,0005	0,0111	-0,0025	0,0042	0,0143	0
7	08/01/1991	0,0541	0,0568	-0,0154	0,0148	-0,0030	-0,0019	-0,0120	-0,0204	0
7	01/02/1991	0,1203	0,1192	0,1169	0,0968	0,0972	0,0704	0,0590	0,0825	0
7	08/03/1991	0,0632	0,0468	0,0227	0,0381	0,0153	0,0165	-0,0012	-0,0072	0
7	30/04/1991	-0,0301	-0,0275	-0,0040	-0,0223	-0,0105	-0,0057	-0,0077	-0,0144	0
7	06/08/1991	-0,0537	-0,0586	-0,0617	-0,0527	-0,0454	-0,0336	-0,0127	-0,0129	0
7	13/09/1991	0,0155	0,0203	0,0026	0,0129	-0,0139	-0,0068	0,0015	-0,0066	0
7	10/10/1991	0,0518	0,0539	0,0410	0,0371	0,0318	0,0317	0,0069	0,0182	0

7	06/11/1991	0,0038	-0,0003	-0,0086	-0,0285	-0,0109	0,0089	0,0098	-0,0184	0
7	11/12/1991	0,0035	0,0020	-0,0115	0,0122	-0,0121	-0,0296	-0,0185	0,0015	0
7	20/12/1991	0,0382	0,0557	0,0078	0,0519	0,0335	0,0125	0,0159	0,0374	0
7	09/04/1992	-0,0132	-0,0059	-0,0009	0,0116	0,0141	0,0004	-0,0026	0,0132	0
7	02/07/1992	-0,0534	-0,0648	-0,0359	-0,0088	-0,0076	0,0160	0,0115	-0,0077	0
7	04/09/1992	0,0108	0,0124	-0,0124	0,0036	-0,0171	-0,0190	-0,0170	-0,0160	1
7	04/02/1994	0,0129	0,0101	0,0173	0,0131	0,0132	0,0114	0,0018	0,0039	1
7	22/03/1994	0,0526	0,0515	0,0212	0,0404	0,0122	0,0177	0,0074	0,0047	1
7	18/04/1994	0,0484	0,0406	0,0241	0,0275	0,0133	0,0152	0,0019	-0,0026	1
7	17/05/1994	0,0172	0,0227	0,0228	0,0226	0,0126	0,0072	0,0045	0,0094	1
7	16/08/1994	-0,0323	-0,0251	-0,0137	-0,0177	-0,0149	-0,0062	-0,0007	-0,0095	1
7	15/11/1994	-0,0126	-0,0117	-0,0188	-0,0161	-0,0139	-0,0263	-0,0176	-0,0082	1
7	01/02/1995	0,0491	0,0479	0,0313	0,0404	0,0341	0,0245	0,0113	0,0209	0
7	06/07/1995	-0,0263	-0,0167	-0,0167	-0,0149	-0,0117	-0,0090	-0,0020	-0,0050	0
7	19/12/1995	0,0043	0,0003	-0,0026	-0,0172	-0,0041	-0,0025	-0,0022	-0,0020	0
7	31/01/1996	-0,0094	-0,0034	0,0068	-0,0062	0,0023	-0,0081	-0,0081	0,0027	1
7	25/03/1997	-0,0652	-0,0625	-0,0548	-0,0535	-0,0339	-0,0320	-0,0242	-0,0301	0
7	29/09/1998	0,0340	0,0317	0,0190	0,0402	0,0011	-0,0109	-0,0161	-0,0087	0
7	15/10/1998	0,0132	-0,0102	0,0111	0,0486	0,0341	0,0394	0,0224	0,0121	0
7	17/11/1998	-0,0427	-0,0338	-0,0225	-0,0263	-0,0180	-0,0081	-0,0019	-0,0118	1
7	30/06/1999	-0,0340	-0,0372	-0,0319	-0,0244	-0,0332	-0,0199	-0,0037	-0,0227	1
7	24/08/1999	-0,0817	-0,0702	-0,0254	-0,0418	-0,0281	-0,0249	-0,0309	-0,0312	1
7	16/11/1999	-0,0312	-0,0491	-0,0309	-0,0858	-0,0431	-0,0424	-0,0330	-0,0336	1
7	02/02/2000	-0,0089	-0,0261	-0,0116	-0,0253	0,0032	0,0103	-0,0309	-0,0388	1
7	31/03/2000	0,2022	0,2346	0,1356	0,1208	0,1205	0,0459	0,0465	0,1028	1
7	16/05/2000	0,0520	0,0478	0,0599	0,0495	0,0588	0,0617	0,0293	0,0424	0
7	03/01/2001	-0,0370	-0,0472	-0,0323	-0,0542	-0,0655	-0,0244	-0,0310	-0,0734	0
7	31/01/2001	-0,0658	-0,0477	-0,0138	-0,0178	-0,0006	-0,0047	-0,0097	-0,0009	0
7	20/03/2001	-0,0625	-0,0451	-0,0180	-0,0388	-0,0099	-0,0290	-0,0189	-0,0015	0
7	18/04/2001	-0,0736	-0,0605	-0,0731	-0,0509	-0,0428	-0,0303	-0,0135	-0,0273	0
7	15/05/2001	-0,0212	-0,0101	-0,0040	0,0030	0,0083	-0,0055	-0,0094	0,0092	0
7	27/06/2001	0,0176	0,0144	0,0165	0,0059	0,0057	0,0116	0,0071	0,0040	0
7	21/08/2001	-0,0199	-0,0225	-0,0175	-0,0352	-0,0177	-0,0100	-0,0192	-0,0278	0
7	17/09/2001	-0,0305	-0,0397	-0,0026	-0,0225	0,0100	-0,0320	-0,0257	0,0306	0
7	02/10/2001	-0,0081	-0,0037	0,0231	0,0174	0,0248	0,0213	-0,0365	-0,0253	0
7	06/11/2001	-0,0121	-0,0155	0,0027	0,0054	0,0052	-0,0025	-0,0027	0,0044	0
7	11/12/2001	0,0099	0,0082	0,0032	0,0078	0,0089	0,0044	-0,0068	0,0007	0
7	06/11/2002	0,0017	-0,0045	-0,0087	-0,0095	-0,0045	-0,0146	-0,0023	0,0040	0
7	25/06/2003	0,0083	0,0007	-0,0025	0,0012	-0,0008	0,0011	0,0127	0,0099	1
7	30/06/2004	-0,0050	-0,0021	0,0122	0,0025	0,0076	0,0095	0,0065	0,0014	1
7	10/08/2004	0,0287	0,0264	0,0274	0,0301	0,0254	0,0196	0,0062	0,0151	1
7	21/09/2004	-0,0178	-0,0199	-0,0042	0,0088	0,0036	0,0015	-0,0043	-0,0003	1
7	10/11/2004	-0,0023	0,0272	0,0030	0,0098	0,0016	0,0000	0,0098	0,0042	1
7	14/12/2004	-0,0127	-0,0040	0,0067	-0,0103	-0,0045	-0,0002	-0,0071	-0,0096	1
7	02/02/2005	-0,0326	-0,0243	-0,0075	-0,0182	0,0008	0,0002	-0,0037	0,0044	1
7	22/03/2005	-0,0022	0,0091	-0,0106	-0,0038	-0,0079	-0,0068	-0,0047	-0,0065	1

7	03/05/2005	0,0315	0,0366	0,0307	0,0186	0,0248	0,0266	0,0033	0,0020	1
7	30/06/2005	0,0278	0,0193	0,0129	0,0066	0,0122	0,0194	0,0131	0,0045	1
7	09/08/2005	-0,0206	-0,0118	-0,0047	-0,0149	-0,0099	-0,0080	-0,0036	0,0011	1
7	20/09/2005	-0,0107	-0,0088	-0,0073	-0,0075	-0,0035	-0,0013	-0,0043	-0,0073	1
7	01/11/2005	0,0301	0,0288	0,0379	0,0135	0,0187	0,0037	-0,0031	0,0102	1
7	13/12/2005	-0,0256	-0,0171	-0,0167	-0,0048	-0,0066	-0,0090	-0,0098	-0,0053	1
7	31/01/2006	0,0003	-0,0005	0,0057	0,0163	0,0073	0,0062	-0,0026	0,0025	1
7	28/03/2006	-0,0305	-0,0284	-0,0284	-0,0268	-0,0316	-0,0201	-0,0083	-0,0211	1
7	10/05/2006	0,0114	0,0087	-0,0033	0,0027	0,0009	0,0078	0,0074	-0,0019	1
7	29/06/2006	0,0172	0,0047	0,0110	0,0168	0,0144	0,0067	0,0052	0,0124	0
7	18/09/2007	-0,0074	-0,0021	0,0140	0,0303	0,0228	0,0047	0,0014	0,0170	0
7	31/10/2007	0,0106	0,0039	0,0350	0,0128	0,0279	-0,0191	-0,0097	0,0326	0
7	11/12/2007	-0,0108	-0,0130	-0,0046	-0,0229	-0,0188	-0,0217	-0,0109	-0,0108	0
7	22/01/2008	0,0240	0,0312	0,0660	0,0215	0,0500	0,0551	0,0463	0,0370	0
7	30/01/2008	0,0360	0,0262	0,0207	-0,0174	-0,0247	0,0141	-0,0091	-0,0476	0
7	18/03/2008	-0,0023	-0,0030	0,0273	0,0046	0,0208	0,0142	0,0267	0,0196	0
7	30/04/2008	-0,0718	-0,0594	-0,0272	-0,0331	-0,0113	0,0058	-0,0087	-0,0318	0
7	08/10/2008	0,1173	0,1245	0,1398	0,0934	0,1306	0,1764	0,0696	0,0674	0
7	29/10/2008	-0,0413	-0,0798	-0,1078	-0,1172	-0,0595	-0,0372	-0,0310	-0,0558	0
7	16/12/2008	-0,0370	0,0348	0,0865	-0,0470	-0,0048	0,0037	0,0295	0,0259	1
7	16/12/2015	-0,0074	-0,0068	0,0007	-0,0042	0,0020	-0,0031	0,0054	0,0095	1
7	14/12/2016	-0,0089	0,0085	0,0028	0,0039	-0,0068	-0,0054	-0,0016	-0,0067	1
7	15/03/2017	-0,0297	-0,0262	-0,0331	-0,0227	-0,0270	-0,0203	-0,0075	-0,0164	1
7	14/06/2017	0,0374	0,0380	0,0373	0,0513	0,0403	0,0336	0,0098	0,0118	1
7	13/12/2017	-0,0146	-0,0149	0,0046	-0,0233	-0,0102	-0,0170	-0,0085	-0,0058	1
7	21/03/2018	0,0081	0,0119	0,0156	0,0082	0,0161	0,0201	-0,0025	0,0053	1
7	13/06/2018	-0,0037	-0,0025	0,0081	0,0054	0,0055	0,0012	-0,0058	-0,0011	1
7	26/09/2018	-0,0183	-0,0169	-0,0005	-0,0140	0,0033	-0,0138	-0,0134	0,0050	1
7	19/12/2018	-0,0050	-0,0184	-0,0410	-0,0088	-0,0144	-0,0152	-0,0083	-0,0043	0
7	31/07/2019	-0,0124	-0,0206	-0,0127	-0,0142	-0,0113	-0,0030	0,0031	-0,0086	0
7	18/09/2019	-0,0046	0,0029	0,0042	-0,0079	-0,0030	0,0038	0,0043	-0,0050	0
7	30/10/2019	0,0017	0,0067	0,0007	-0,0033	-0,0093	-0,0035	0,0012	-0,0008	0
7	03/03/2020	-0,1120	-0,1149	-0,1167	-0,1587	-0,1176	-0,0608	-0,0402	-0,0834	0
7	15/03/2020	-0,0747	-0,0805	-0,0535	-0,0822	-0,0447	-0,1252	-0,0489	-0,0040	1
7	16/03/2022	-0,0299	-0,0379	0,0063	-0,0025	0,0008	-0,0011	-0,0186	-0,0230	1
7	04/05/2022	-0,0100	-0,0279	-0,0245	-0,0164	-0,0261	-0,0279	-0,0085	-0,0014	1
7	15/06/2022	-0,0382	-0,0491	-0,0371	-0,0412	-0,0250	-0,0348	0,0040	0,0072	1
7	27/07/2022	0,0032	0,0026	0,0037	0,0128	0,0013	-0,0233	-0,0204	-0,0001	1
7	21/09/2022	0,0068	0,0087	-0,0068	-0,0175	-0,0152	-0,0268	-0,0310	-0,0160	1
7	02/11/2022	0,0296	0,0350	0,0192	0,0312	0,0262	0,0419	0,0191	0,0059	1
7	14/12/2022	0,0008	-0,0047	-0,0121	0,0120	0,0021	-0,0094	-0,0067	0,0061	1
7	01/02/2023	-0,0252	-0,0336	-0,0179	-0,0142	-0,0097	-0,0003	-0,0116	-0,0151	1
7	22/03/2023	-0,1158	-0,1112	-0,0985	-0,0423	-0,0428	-0,0320	-0,0094	-0,0141	1
7	03/05/2023	-0,0030	-0,0179	-0,0124	-0,0124	-0,0106	-0,0127	-0,0101	-0,0145	1
7	26/06/2023	0,0551	0,0653	0,0218	0,0319	0,0385	0,0187	0,0195	0,0476	0
8	18/03/1980	0,0536	0,0635	0,0294	0,0199	0,0212	0,0111	0,0000	0,0041	0

8	15/05/1980	0,0584	0,0358	0,0551	0,0326	0,0213	0,0101	0,0063	0,0118	0
8	05/06/1980	0,0106	0,0029	-0,0080	-0,0039	-0,0017	-0,0015	-0,0073	-0,0081	1
8	07/08/1980	0,0602	0,0352	0,0314	0,0187	0,0111	0,0086	-0,0145	0,0002	1
8	16/09/1980	-0,0332	-0,0339	-0,0021	-0,0086	-0,0015	0,0229	0,0149	-0,0183	1
8	13/10/1980	-0,0846	-0,1078	-0,0507	-0,0495	-0,0317	-0,0419	-0,0217	-0,0206	1
8	21/11/1980	-0,0707	-0,0689	-0,0329	-0,0327	-0,0233	-0,0214	-0,0205	-0,0200	1
8	05/12/1980	-0,0636	-0,0537	-0,0440	-0,0150	-0,0207	-0,0075	-0,0092	-0,0248	0
8	21/12/1980	-0,0256	-0,0071	-0,0546	-0,0073	-0,0323	-0,0088	0,0027	-0,0224	1
8	03/02/1981	0,0127	0,0121	-0,0038	-0,0065	-0,0023	-0,0067	-0,0016	-0,0020	0
8	28/04/1981	0,0472	0,0318	0,0031	0,0084	-0,0131	-0,0049	-0,0365	-0,0523	1
8	18/05/1981	-0,0166	-0,0553	-0,0112	0,0047	0,0118	-0,0026	0,0130	0,0148	0
8	17/11/1981	0,0286	0,0199	0,0017	-0,0074	-0,0031	-0,0077	-0,0016	-0,0093	0
8	22/12/1981	0,0581	0,0765	0,0412	0,0440	0,0332	0,0121	-0,0006	0,0227	1
8	30/03/1982	0,0011	0,0425	0,0328	0,0243	0,0168	0,0297	0,0093	-0,0074	0
8	15/07/1982	-0,0320	-0,0344	-0,0041	-0,0116	-0,0074	-0,0191	-0,0169	-0,0011	0
8	24/08/1982	-0,0096	-0,0214	-0,0091	0,0043	0,0034	0,0093	0,0429	0,0367	0
8	16/11/1982	0,0928	0,0800	0,1314	0,0644	0,0738	0,0513	0,0286	0,0525	0
8	21/12/1982	0,0018	-0,0191	-0,0212	0,0168	0,0062	-0,0105	-0,0040	0,0147	1
8	24/05/1983	-0,0040	-0,0094	0,0065	-0,0050	-0,0108	-0,0145	-0,0212	-0,0179	1
8	23/08/1983	-0,0996	-0,0636	-0,0406	-0,0524	-0,0504	-0,0657	-0,0210	-0,0079	0
8	04/10/1983	-0,0495	-0,0414	-0,0141	-0,0438	-0,0368	-0,0017	-0,0051	-0,0372	1
8	29/03/1984	0,0456	0,0386	0,0129	0,0172	0,0097	0,0314	0,0129	-0,0045	1
8	17/07/1984	-0,0300	-0,0229	-0,0221	0,0058	-0,0120	0,0091	-0,0075	-0,0256	1
8	21/08/1984	-0,0417	-0,0183	-0,0217	-0,0057	0,0055	-0,0070	0,0028	0,0170	0
8	02/10/1984	-0,0313	-0,0224	-0,0049	0,0099	0,0123	0,0077	-0,0138	-0,0093	0
8	07/11/1984	-0,0037	-0,0103	-0,0150	-0,0101	-0,0109	0,0006	-0,0020	-0,0056	1
8	18/12/1984	0,0367	0,0507	-0,0031	0,0057	-0,0017	-0,0042	-0,0044	-0,0053	0
8	26/03/1985	-0,0315	-0,0339	-0,0345	-0,0247	-0,0247	-0,0234	-0,0094	-0,0163	0
8	20/05/1985	-0,0062	-0,0212	-0,0233	0,0044	-0,0174	-0,0017	-0,0022	-0,0253	0
8	20/08/1985	-0,0659	-0,0695	-0,0256	-0,0289	-0,0182	-0,0033	0,0041	-0,0102	1
8	17/12/1985	0,0437	0,0535	0,0312	0,0370	0,0335	0,0097	0,0033	0,0264	0
8	18/04/1986	0,0111	0,0140	0,0105	0,0241	0,0200	0,0487	0,0314	0,0072	0
8	21/08/1986	-0,0312	0,0017	0,0005	-0,0162	-0,0082	-0,0110	-0,0128	-0,0108	0
8	16/12/1986	0,0978	0,1035	0,0195	0,0560	0,0061	-0,0123	-0,0102	0,0080	1
8	19/05/1987	-0,0922	-0,0979	-0,0485	-0,0565	-0,0446	-0,0392	-0,0324	-0,0325	1
8	22/09/1987	-0,0977	-0,1022	0,0298	0,0176	0,0291	0,0035	-0,0064	0,0154	0
8	04/11/1987	-0,1005	-0,0953	0,0139	0,0748	0,0808	0,1046	-0,0161	-0,0261	0
8	10/02/1988	0,0716	0,0585	0,0155	0,0246	0,0145	-0,0011	0,0018	0,0196	1
8	29/03/1988	0,0912	0,0633	0,0045	0,0175	-0,0046	0,0068	0,0023	-0,0177	1
8	16/08/1988	-0,0539	-0,0451	-0,0383	-0,0410	-0,0288	-0,0344	-0,0190	-0,0151	1
8	14/12/1988	0,0346	0,0363	0,0004	0,0365	-0,0013	-0,0061	-0,0080	0,0005	1
8	19/12/1989	0,0220	0,0380	0,0455	0,0353	0,0389	0,0052	0,0054	0,0397	0
8	01/01/1990	0,0056	-0,0172	0,0364	0,0464	0,0398	0,0516	0,0240	0,0169	0
8	13/07/1990	-0,0296	-0,0462	-0,0287	-0,0618	-0,0290	-0,0164	-0,0042	-0,0102	0
8	29/10/1990	0,0668	0,0834	0,0915	0,0965	0,0648	0,0362	0,0222	0,0413	0
8	14/11/1990	0,1318	0,1001	0,0477	0,0612	0,0392	0,0423	0,0281	0,0209	0

8	07/12/1990	0,1009	0,0559	0,0151	0,0496	0,0203	0,0467	0,0065	-0,0078	0
8	19/12/1990	0,0598	0,0857	0,0558	0,0247	0,0155	-0,0243	-0,0140	0,0226	0
8	08/01/1991	0,1175	0,1032	0,0321	0,0725	0,0487	0,0360	-0,0011	0,0120	0
8	01/02/1991	0,0847	0,0980	0,0617	0,0438	0,0455	0,0425	0,0160	0,0222	0
8	08/03/1991	0,0089	0,0057	0,0106	0,0385	0,0184	0,0199	-0,0028	-0,0232	0
8	30/04/1991	-0,0897	-0,0622	-0,0443	-0,0371	-0,0163	-0,0192	0,0045	0,0041	0
8	06/08/1991	0,0107	0,0116	-0,0523	-0,0289	-0,0250	0,0051	-0,0045	-0,0370	0
8	13/09/1991	0,0604	0,0786	0,0649	0,0138	0,0220	0,0117	0,0139	0,0192	0
8	10/10/1991	-0,0165	-0,0221	-0,0230	-0,0139	-0,0124	-0,0094	0,0049	0,0028	0
8	06/11/1991	0,0470	0,0383	-0,0005	0,0397	0,0164	0,0053	-0,0084	0,0199	0
8	11/12/1991	0,1131	0,1221	0,0031	0,0053	-0,0272	-0,0095	0,0122	-0,0045	0
8	20/12/1991	0,0912	0,0714	0,0229	0,0573	0,0215	-0,0092	-0,0102	0,0232	0
8	09/04/1992	-0,1038	-0,1001	-0,0760	-0,0446	-0,0479	-0,0374	-0,0062	-0,0197	0
8	02/07/1992	0,0299	0,0420	0,0658	0,0657	0,0754	0,0295	0,0478	0,0787	0
8	04/09/1992	0,0015	-0,0042	0,0003	-0,0146	-0,0016	-0,0007	0,0154	0,0006	1
8	04/02/1994	0,0218	0,0222	0,0251	0,0246	0,0350	0,0240	0,0339	0,0341	1
8	22/03/1994	-0,1061	-0,0931	-0,0343	-0,0724	-0,0275	-0,0205	-0,0123	-0,0285	1
8	18/04/1994	-0,0784	-0,0863	-0,0603	-0,0514	-0,0488	-0,0445	-0,0169	-0,0178	1
8	17/05/1994	-0,0226	-0,0128	-0,0059	-0,0196	-0,0194	-0,0192	-0,0087	-0,0152	1
8	16/08/1994	0,0232	0,0157	0,0089	0,0185	0,0040	0,0136	0,0065	-0,0030	1
8	15/11/1994	-0,0548	-0,0523	-0,0086	-0,0311	-0,0113	0,0047	0,0133	-0,0081	1
8	01/02/1995	-0,0101	-0,0238	-0,0282	-0,0234	-0,0173	-0,0216	-0,0088	-0,0010	0
8	06/07/1995	0,0672	0,0375	0,0162	0,0409	0,0154	0,0084	0,0046	0,0071	0
8	19/12/1995	0,0110	0,0055	-0,0005	0,0046	0,0015	0,0134	0,0170	0,0126	0
8	31/01/1996	0,0188	0,0489	0,0250	0,0036	0,0006	-0,0118	-0,0025	0,0108	1
8	25/03/1997	-0,0322	-0,0293	-0,0068	-0,0100	-0,0008	-0,0214	-0,0279	-0,0060	0
8	29/09/1998	0,0602	0,0577	-0,0271	0,0104	-0,0411	-0,0234	-0,0390	-0,0652	0
8	15/10/1998	0,1072	0,0794	0,0312	0,1376	0,1188	0,0537	0,0536	0,1181	0
8	17/11/1998	0,1092	0,0673	0,0259	0,0320	0,0185	0,0111	0,0004	0,0093	1
8	30/06/1999	-0,0282	-0,0331	0,0372	-0,0222	0,0102	-0,0074	-0,0220	-0,0034	1
8	24/08/1999	0,0318	0,0362	0,0588	0,0728	0,0539	0,0206	-0,0010	0,0492	1
8	16/11/1999	0,1182	0,0945	0,0596	0,0819	0,0412	0,0424	0,0211	0,0323	1
8	02/02/2000	0,0013	0,0182	0,0359	0,0397	0,0229	0,0111	0,0282	0,0369	1
8	31/03/2000	-0,1120	-0,1340	-0,1481	-0,1236	-0,1272	-0,0408	-0,0206	-0,1037	1
8	16/05/2000	0,0299	0,0328	-0,0032	0,0128	-0,0064	-0,0177	-0,0157	-0,0001	0
8	03/01/2001	0,0623	0,0729	0,0502	0,0831	0,0860	0,0720	0,0194	0,0599	0
8	31/01/2001	0,0604	0,0493	0,0075	0,0184	0,0183	0,0239	0,0068	0,0051	0
8	20/03/2001	-0,0466	-0,0518	-0,0345	-0,0191	-0,0242	-0,0039	0,0234	-0,0072	0
8	18/04/2001	0,0362	0,0146	0,0427	0,0349	0,0411	0,0270	0,0285	0,0481	0
8	15/05/2001	0,0948	0,0794	0,0523	0,0542	0,0568	0,0251	0,0062	0,0503	0
8	27/06/2001	-0,0578	-0,0547	-0,0409	-0,0228	-0,0173	-0,0126	0,0084	0,0035	0
8	21/08/2001	-0,0813	-0,0651	-0,0365	-0,0462	-0,0292	-0,0014	0,0055	-0,0192	0
8	17/09/2001	-0,0655	-0,0581	-0,0911	-0,0653	-0,0983	-0,0467	-0,0109	-0,0726	0
8	02/10/2001	-0,0757	-0,0628	-0,0289	-0,0230	-0,0187	-0,0147	0,0143	0,0134	0
8	06/11/2001	0,0429	0,0395	0,0232	0,0364	0,0235	0,0077	0,0068	0,0223	0
8	11/12/2001	0,0797	0,0567	0,0544	0,0479	0,0564	0,0551	0,0256	0,0310	0

8	06/11/2002	0,1409	0,1316	0,0866	0,1045	0,0823	0,0638	0,0087	0,0308	0
8	25/06/2003	-0,0078	-0,0001	0,0047	-0,0020	0,0149	0,0012	0,0114	0,0296	1
8	30/06/2004	-0,0398	-0,0378	-0,0264	-0,0268	-0,0193	-0,0130	-0,0191	-0,0356	1
8	10/08/2004	-0,0149	0,0011	-0,0131	-0,0161	-0,0088	-0,0156	-0,0186	-0,0080	1
8	21/09/2004	0,0832	0,0795	0,0603	0,0507	0,0438	0,0262	0,0287	0,0406	1
8	10/11/2004	0,0033	-0,0069	-0,0077	-0,0063	-0,0126	-0,0195	-0,0011	0,0013	1
8	14/12/2004	-0,0055	-0,0124	0,0031	-0,0086	-0,0043	-0,0106	-0,0015	0,0018	1
8	02/02/2005	-0,0436	-0,0252	-0,0267	-0,0251	-0,0113	-0,0168	-0,0198	-0,0185	1
8	22/03/2005	-0,0244	-0,0168	0,0061	0,0133	0,0121	0,0150	0,0086	0,0088	1
8	03/05/2005	-0,0017	0,0025	-0,0010	0,0091	0,0000	-0,0074	-0,0044	0,0061	1
8	30/06/2005	-0,0193	-0,0227	-0,0124	-0,0209	-0,0074	-0,0060	-0,0034	-0,0052	1
8	09/08/2005	-0,0094	-0,0072	-0,0004	-0,0057	-0,0107	-0,0064	-0,0090	-0,0086	1
8	20/09/2005	0,0114	0,0123	0,0100	0,0102	0,0103	0,0012	0,0055	0,0157	1
8	01/11/2005	0,0248	0,0233	0,0159	0,0034	-0,0023	-0,0097	0,0027	0,0084	1
8	13/12/2005	0,0115	0,0120	-0,0035	-0,0047	-0,0030	-0,0082	-0,0174	-0,0101	1
8	31/01/2006	0,0164	0,0159	-0,0005	0,0048	-0,0009	0,0090	0,0042	-0,0039	1
8	28/03/2006	-0,0145	-0,0143	0,0029	0,0037	0,0033	0,0040	0,0070	0,0020	1
8	10/05/2006	-0,0491	-0,0488	-0,0385	-0,0170	-0,0203	-0,0074	-0,0016	-0,0156	1
8	29/06/2006	-0,0363	-0,0356	-0,0198	-0,0399	-0,0339	-0,0178	-0,0079	-0,0269	0
8	18/09/2007	0,0324	0,0330	0,0159	0,0345	0,0201	0,0096	-0,0004	0,0133	0
8	31/10/2007	-0,0495	-0,0617	-0,0440	-0,0580	-0,0538	-0,0265	-0,0121	-0,0377	0
8	11/12/2007	-0,0518	-0,0449	0,0069	-0,0092	0,0132	0,0061	-0,0051	0,0024	0
8	22/01/2008	-0,0281	-0,0238	-0,0014	0,0141	0,0105	0,0044	-0,0012	0,0053	0
8	30/01/2008	-0,0171	0,0082	0,0257	0,0104	0,0165	0,0012	0,0072	0,0168	0
8	18/03/2008	-0,0107	-0,0129	0,0046	-0,0130	-0,0002	0,0027	0,0077	0,0060	0
8	30/04/2008	0,0462	0,0469	0,0453	0,0361	0,0397	0,0249	0,0116	0,0242	0
8	08/10/2008	-0,0984	-0,0821	-0,0612	-0,0834	-0,0568	-0,0451	0,0033	-0,0166	0
8	29/10/2008	-0,0566	-0,0102	-0,0475	-0,0381	-0,0248	-0,0075	0,0493	0,0237	0
8	16/12/2008	0,0757	0,0784	0,0411	0,0383	0,0222	0,0152	0,0145	0,0240	1
8	16/12/2015	-0,0435	-0,0439	-0,0232	-0,0367	-0,0203	-0,0198	-0,0068	-0,0107	1
8	14/12/2016	-0,0088	-0,0166	-0,0330	-0,0044	-0,0160	-0,0175	-0,0063	-0,0052	1
8	15/03/2017	-0,0019	0,0009	0,0075	-0,0017	0,0068	0,0064	-0,0022	0,0014	1
8	14/06/2017	-0,0138	-0,0191	-0,0136	-0,0185	-0,0073	-0,0063	0,0046	0,0074	1
8	13/12/2017	-0,0040	-0,0050	-0,0061	0,0057	0,0031	0,0074	0,0014	-0,0045	1
8	21/03/2018	-0,0088	0,0001	-0,0131	-0,0214	-0,0224	-0,0122	-0,0094	-0,0215	1
8	13/06/2018	-0,0116	-0,0073	-0,0052	-0,0130	-0,0133	0,0093	0,0119	-0,0094	1
8	26/09/2018	-0,0150	-0,0147	-0,0230	-0,0077	-0,0229	-0,0093	-0,0047	-0,0189	1
8	19/12/2018	0,0322	0,0217	0,0235	0,0094	0,0040	0,0090	0,0085	0,0039	0
8	31/07/2019	0,0043	-0,0007	0,0034	0,0139	0,0150	0,0109	0,0002	0,0117	0
8	18/09/2019	-0,0369	-0,0413	-0,0246	-0,0105	-0,0054	-0,0070	-0,0048	-0,0045	0
8	30/10/2019	0,0025	0,0052	-0,0073	0,0262	0,0116	0,0013	-0,0025	0,0074	0
8	03/03/2020	0,0051	0,0082	-0,0243	-0,0152	-0,0321	-0,0071	-0,0105	-0,0389	0
8	15/03/2020	-0,0224	-0,0248	-0,0269	-0,0219	-0,0088	-0,0197	-0,0260	-0,0065	1
8	16/03/2022	-0,0044	-0,0022	-0,0006	0,0031	-0,0022	-0,0038	-0,0029	-0,0070	1
8	04/05/2022	0,0130	0,0121	-0,0008	0,0040	-0,0011	-0,0042	-0,0097	-0,0051	1
8	15/06/2022	0,0152	0,0001	0,0060	0,0012	-0,0005	0,0000	-0,0024	0,0012	1

8	27/07/2022	0,0022	-0,0036	0,0196	0,0021	0,0094	0,0127	0,0041	0,0019	1
8	21/09/2022	0,0009	0,0068	0,0064	-0,0084	-0,0009	-0,0146	-0,0030	0,0114	1
8	02/11/2022	0,0100	0,0188	0,0147	0,0049	0,0186	-0,0064	-0,0186	0,0133	1
8	14/12/2022	0,0225	0,0316	0,0176	0,0180	0,0104	0,0008	0,0037	0,0116	1
8	01/02/2023	0,0101	-0,0027	0,0013	-0,0061	-0,0046	-0,0005	-0,0054	-0,0094	1
8	22/03/2023	-0,0226	-0,0134	-0,0303	-0,0023	-0,0137	-0,0090	-0,0047	-0,0101	1
8	03/05/2023	-0,0190	-0,0226	-0,0148	-0,0087	-0,0097	-0,0080	-0,0067	-0,0077	1
8	26/06/2023	-0,0076	0,0006	0,0159	0,0092	0,0130	-0,0063	0,0021	0,0191	0
9	04/02/1994	0,0218	0,0783	-0,0677	-0,0884	-0,1060	-0,0494	-0,0146	-0,0816	1
9	22/03/1994	0,0102	-0,0069	0,0456	-0,0397	0,0603	0,0546	0,0302	0,0358	1
9	18/04/1994	-0,1138	-0,1099	-0,0943	-0,0891	-0,1098	-0,0368	0,0420	-0,0330	1
9	17/05/1994	-0,1770	-0,2084	-0,0860	-0,1090	-0,0884	-0,0857	-0,0507	-0,0705	1
9	16/08/1994	0,1406	0,1195	0,0491	0,0686	0,0467	0,0600	0,0571	0,0383	1
9	15/11/1994	-0,2621	-0,2518	-0,1255	-0,2374	-0,1800	-0,0309	-0,0226	-0,1836	1
9	01/02/1995	0,0239	0,0446	0,0114	-0,0724	-0,0112	0,0182	0,0032	-0,0360	0
9	06/07/1995	0,1856	0,1902	0,0415	0,1178	0,0324	-0,0559	-0,0472	0,0301	0
9	19/12/1995	-0,2447	-0,2145	-0,1992	-0,1706	-0,1366	-0,1454	-0,1335	-0,1069	0
9	31/01/1996	0,1668	0,1875	0,1453	0,0521	0,0698	0,0555	-0,0540	-0,0407	1
9	25/03/1997	-0,1490	-0,1324	-0,0246	-0,1416	-0,0501	-0,0742	-0,0270	-0,0120	0
9	16/03/2022	0,1690	0,1298	-0,0057	0,0069	0,0152	0,0149	0,0085	0,0144	1
9	04/05/2022	-0,0645	-0,0726	-0,0844	-0,0652	-0,0613	-0,0574	-0,0230	-0,0253	1
9	15/06/2022	-0,1188	-0,0967	-0,0553	-0,0758	-0,0664	-0,0898	-0,0291	-0,0096	1
9	27/07/2022	-0,1168	-0,0935	-0,0863	-0,0578	-0,0691	-0,0415	-0,0459	-0,0867	1
9	21/09/2022	0,0007	0,0210	0,0145	0,0231	0,0265	-0,0056	-0,0181	0,0120	1
9	02/11/2022	0,1351	0,1198	0,0943	0,0840	0,0772	0,1201	0,0798	0,0353	1
9	14/12/2022	-0,0914	-0,1234	-0,0297	-0,0487	-0,0373	-0,0304	-0,0098	-0,0123	1
9	01/02/2023	-0,1087	-0,0540	-0,0222	0,0199	-0,0124	0,0014	-0,0026	-0,0114	1
9	22/03/2023	-0,1055	-0,0752	-0,0668	-0,0379	-0,0428	-0,0359	-0,0108	-0,0200	1
9	03/05/2023	-0,1045	-0,1036	-0,1253	-0,0853	-0,1220	-0,1087	-0,1368	-0,1529	1
9	26/06/2023	0,1760	0,2068	0,1193	0,0935	0,0900	0,0627	0,0338	0,0620	0

H4 (3)