Corporate Bond Issuance by Financial Institutions

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Public debt of the financial sector comprises about a quarter of the aggregate market, and more than a third in the investment-grade space. Corporate bond net issuances by financial institutions occur at the inflection points in business, financial, and monetary policy cycles unlike other capital flow measures. High bond net issuances follow periods of high economic growth and market returns, low uncertainty and credit spreads, monetary policy tightening, and predict a subsequent reversal of the cycles. The effects are mostly driven by large, sophisticated, and heavily regulated financial intermediaries. These institutions actively time their bond net issuances to benefit from accommodating interest rate environments, and to build-up capital in anticipation of future economic slowdowns and tighter regulatory constraints.

Keywords: corporate bonds, net issuance, financial sector, banking regulations, predictability

Introduction

Since the turn of the century, the financial sector has been a prominent player in the public debt issuance market. For example, financial companies sold about $427.7 billion of bonds in 2022, which represented 55% of the total bond issuance. Outsized and clustered issuances by Goldman Sachs, JP Morgan, Bank of America, and Morgan Stanley capture the attention of investors and media.[1] Yet, the economic rationale behind their debt issuance has received little attention in the academic research.

A common approach in the macro and corporate finance literature is to focus on the corporate structure decisions of nonfinancial firms and ignore financial sector all together.[2] As such, empirically, it is common to filter out observations pertaining to the financial sector, and theoretically, develop models of financing for (physical) good-producing firms. A separate branch of banking literature studies the distinct role of financial intermediaries as deposit takers and loan creators.[3] However, this research also tends to abstract from the public debt issued by financial intermediaries.

This paper aims to fill the gap between these two strands of literature. To this end, we provide novel empirical evidence on the timing of bond issuances by financials, and show their unique relation to economic cycle, distinct from equity issuances by financials, or bond and equity issuances by nonfinancials. We then consider potential economic channels that can rationalize our results, and highlight the precautionary benefit of bond capital. Specifically, we argue that regulated financial intermediaries issue corporate bonds when they anticipate deterioration in economic conditions and

[1]See, e.g., news articles "Analysis: U.S. Banks' Bond Bonanza Driven by Extraordinary Market Conditions, Regulatory Decisions" (Reuters, 2021); "Banks' Debt Sales Are Driving the Corporate Bond Market" (Wall Street Journal, 2021); "Banks Are Flooding the US Market With Bonds Many Hadn't Expected" (Bloomberg News, 2022).

[2]Theories of optimal capital structure for a representative, nonfinancial firm include Merton (1974), Myers and Majluf (1984), Leland (1994), Leland (1998), Hennessy et al. (2010), Strebulaev et al. (2016), among many others.

[3]The banking literature studying the unique role of banks in the economy goes back to Diamond and Dybvig (1983), Diamond (1984), Gorton and Pennacchi (1990), Rajan (1992), Bernanke and Gertler (1995), etc.

ensuing tightening of regulatory constraints.

To conduct our empirical analysis, we collect aggregate data on net equity and bond issuances by the U.S. corporate sector for the period from 1990 to 2019. Throughout the paper, we consider capital flows between investors and firms accessible through regular financial markets, and thus focus on net issuances of publicly traded securities. At the same time, we distinguish between net issuances across sources of capital (equity and bonds), and across sectors (financial and nonfinancial). The net issuances of bonds by the financial sector (BNI^F) is a particular focus for our study.

We document that, unconditionally, both sectors raised capital from investors through equity and bond instruments: the average net issuances are all positive over our sample period. In terms of the stock values, the market value of bonds issued by the financial sector accounts for about 20% to 30% of the total public debt market, and averages to about a third of the market value of its equity (see Figure 1). Relative to nonfinancials, financial companies issue predominantly investment grade bonds, thereby holding a larger market share in the investment grade space (about 25% to 45%).

We next show that net issuances exhibit different cyclicalities across sectors and securities, and corporate bond net issuances by financials in particular stand out among other capital flow measures in their relation to economic conditions. Specifically, the timing of net issuances of corporate bonds by financial institutions coincides with inflection points in business, market, and monetary policy cycles. The issuances tend to increase one-to-two years following periods of high GDP, investment, or earnings growth (business cycle); high equity returns, or low credit spreads and financial volatility (market cycle); and interest rate increases (monetary cycle). High bond net issuances by financials forecast a subsequent reversal of the cycles one-to-two years in the future. The economic and statistical magnitudes of the predictability are quite remarkable. For example, high BNI^F predicts a decline in one-year-ahead growth rates in GDP, investment, and earnings with R^2s of 10%, 25%, and 45%, respectively; a decline in next-year returns on equity, investment and high-yield bonds with R^2s of nearly 30%, 20%, and 35%, and an increase in credit spreads with an R^2 of 30%. These effects are not subsumed by other common predictors of economic and market fundamentals. Moreover, bond issuances by nonfinancials or equity issuances by financials and nonfinancials do not exhibit such predictability patterns.

To help assess potential explanations for our main findings, we further decompose BNI^F across different financial institutions and concentrate on bond net issuances by banks, brokers, asset managers, and exchanges (thereafter, referred to as $Banks + BAME$). It is natural to single out banks due to their distinct regulatory environment, their significant role in the economy, and the fact that they account for the majority of bond net issuances in the financial sector following the Financial Crisis. Changes in entity structure pose challenges in distinguishing banks from BAME throughout the entire sample period, leading us to include both banks and BAME together in our analysis.[4] We document that our predictability results are mainly driven by $Banks + BAME$, and especially by global systematically important banks (GSIBs), rather than other financial firms.

Our empirical evidence points to a precautionary benefit of bond capital for regulated financial intermediaries. In particular, we argue that large and sophisticated financial intermediaries actively time their bond issuances and repurchases because of regulations they face. The Tier 2 capital requirement stipulates an 8% capital ratio, which can be satisfied in part by subordinated bonds. Other forms of regulation such as total loss absorbing capacity (TLAC), net stable funding ratio (NSFR), liquidity coverage ratio (LCR), and stress tests are explicitly or implicitly

[4]Broker-dealer balance sheets by themselves contain significant information on macroeconomic and asset market variables, as shown, for example, in Adrian, Moench, and Shin (2010) and Adrian, Etula, and Muir (2014).

affected by bond capital. These regulations are likely to be more binding during adverse economic conditions. By issuing bonds in advance, banks can take advantage of an accommodating interest rate environment and create a cushion of relatively safe and cheap capital to satisfy regulatory requirements. This regulation channel can explain why high bond issuances by financials follow good economic times and contain information about the reversals in economic cycles.

We provide additional empirical evidence to support our economic story. First, we argue that standard economic margins used to determine debt choice of nonfinancial firms are unlikely to play a significant role for debt choice of financial intermediaries. Although financial institutions account for a sizable fraction of the corporate bond market, quantitatively, public debt is not their major source of financing. Next, we show that the informational content of bond net issuances is directly related to the potential regulatory benefits these issuance offer to firms. Indeed, it is the bond net issuances by large, systemically important, and more heavily regulated financial institutions (that is, GSIBs), which are informative about the changes in future business, market, and monetary policy conditions. At the same time, bond net issuances by finance companies (FCOs), which represent less regulated institutions in the finance sector, do not have any predictive power for the economic cycle, and neither do bond issuances by nonfinancial firms. Preferred stocks, which stand between common equity and bonds, also help banks to satisfy their capital requirements. We find that the predictability evidence for preferred stock net issuance by banks is similar to that of their bond issuance.

Related Literature

Our study directly contributes to the studies of the capital structure decisions by the financial sector. Baron (2020) shows that large U.S. commercial banks do not issue equity during credit expansions, and argues that government guarantees to bank creditors play an important role to explain countercyclical bank equity issuances.

The evidence is further related to Adrian and Shin (2011), who show that the equity of large U.S. banks is sticky, so that debt and deposits drive most of the variation in their leverage. In line with the pecking order theory of Myers and Majluf (1984), the debt issuance is preferred to the equity issuance due to a potential 'stigma' effect, that is, a negative signal of the bank's inability to acquire relatively cheaper debt financing. Our paper complements these studies by showing that financial intermediaries increase bond issuance to build-up regulatory capital in anticipation of deteriorating economic conditions.

Our paper also relates to the literature studying the impact of regulation on activities of financial institutions in the post-Dodd-Frank period (Acharya and Richardson, 2012). For instance, Cecchetti and Kashyap (2016) argue that the risk-weighted capital ratio, the leverage ratio, the liquidity coverage ratio, and the net stable funding ratio never bind simultaneously and therefore act as substitutes. Regarding potential impacts, Gandhi and Purnanandam (2021) document an increasing pairwise correlation of bank equity returns and attribute the effect to similarities in balance sheet exposures of the largest banks due to stress tests. In the context of liquidity regulation, Sundaresan and Xiao (2024) show that regulatory restrictions shift liquidity to non-regulated banks. In a recent paper, Bosshardt, Kakhbod, and Saidi (2024) argue that as a result of tighter liquidity requirements, banks with a larger share of stable long-term liabilities are more likely to engage in risk taking. Our paper similarly documents that bond net issuance by regulated financial institutions is informative about risks accumulated on their balance sheets.

More broadly, our work contributes to the literature that analyzes the cyclical behavior of debt and equity financing of nonfinancial firms. Covas and Haan (2011), Jermann and Quadrini (2012), Korajczyk and Levy (2003), and Begenau and Salomao (2019) underscore the importance of the heterogeneity in the aggregate net issuances, though they primarily focus on the differences across firm size distribution, rather than between financial and nonfinancial firms. Davydiuk, Richard, Shaliastovich, and Yaron (2023) argue that aggregate net issuances of equity and bonds are largely acyclical with respect to the high and low-frequency fluctuations in business cycle. Bansal and Yaron (2007) and Larrain and Yogo (2008) also incorporate aggregate issuance data to study payout and return predictability. Ma (2019) documents a negative correlation between debt and equity issuance by nonfinancial firms, and argues that corporate firms use different sources of external capital based on their relative pricing. When debt financing becomes relatively inexpensive, they tend to issue more debt and increase equity repurchases. In the context of equity capital markets, Dittmar and Dittmar (2008) show a strong positive correlation between equity issuances and repurchases by nonfinancial firms. We contribute to and differentiate from this literature by focusing on net bond issuances by financial institutions.

Our paper is further connected to the empirical work that examines the connection between the banking-related credit fluctuations and economic and financial cycles, the so-called ”calm before the storm” literature. For example, Schularick and Taylor (2012) show that credit booms can forecast financial crises using a long sample of 14 developed countries, and Baron and Muir (2022) show that balance sheet expansion of leveraged intermediaries predicts returns on stocks, bonds, currencies, and housing. Baron and Green (2023) reach similar conclusion by exploiting the removal of credit ceilings. In the context of the U.S. data, López-Salido, Stein, and Zakrajšek (2017) go beyond the balance-sheet measure of credit growth and identify credit booms with proxies for the expected returns on credit assets. They document that these periods of elevated credit-market sentiment precede periods of low growth in output, investment, and consumption, and high unemployment rates. Mian, Sufi, and Verner (2017) focus on the bank credit to households and find the ratio of household debt to GDP to be a strong predictor of output growth and unemployment rates. A number of economic channels has been proposed to explain the credit-driven economic fluctuations, such as investor overoptimism (Kindleberger, 1978; Minsky, 1986; Gennaioli, Shleifer, and Vishny, 2015; Baron and Xiong, 2017; Greenwood, Hanson, and Jin, 2019), time-varying risk (Gomes, Grotteria, and Wachter, 2018; Santos and Veronesi, 2022), and, consistent with our message, financial deregulations and innovations (Diaz-Alejandro, 1985; Kaminsky and Reinhart, 1999).

Finally, our paper contributes to the extensive literature on the predictability of macroeconomic growth rates and market valuations. In the context of equity returns, we show that our predictor maintains its predictive power controlling for common factors related to the equity premium, such as the market price-dividend ratio, net payout yield (Boudoukh et al., 2007), the variance risk premium (Zhou, 2018), the leverage of security broker-dealers (Adrian et al., 2014), the logarithm of the gold-platinum price ratio (Huang and Kilic, 2019), and the consumption-wealth ratio of Lettau and Ludvigson (2001). In a kitchen-sink regression, BNI^F stands out among the considered predictors of next-year market returns with an absolute t-statistic of over 3.

1 Data

Our empirical analysis uses bond, equity, and macroeconomic data for the aggregate U.S. economy, and for the firms in financial and nonfinancial sectors. Due to the availability of bond data, our sample starts in 1990, and goes until 2019 to exclude extreme fluctuations due to the COVID pandemic.

Bond-related data. Corporate bonds are typically traded at the over-the-counter (OTC) dealer's market, and there is no single centralized platform to obtain reliable market valuations, distributions, and issuances of all the bonds of corporations.

We use aggregate indices provided by Bloomberg as our benchmark source for corporate bond data.[5] The Indices are widely used in the financial industry because

[5]The Barclays Capital Aggregate Bond Index was acquired by Bloomberg in 2016, and renamed the Bloomberg Barclays U.S. Aggregate Bond Index. In August of 2021 the index was further renamed the Bloomberg U.S. Aggregate Bond Index.

of their accuracy and market coverage. Reported market capitalizations and month-to-date index returns are updated on a daily basis, and our data are taken on the last trading day of the month when bond prices are hand-marked by traders. While we do not have access to individual bond data, Bloomberg subdivides the aggregate indices into financial and nonfinancial sub-components, which allows us to track valuations and net issuances within these sectors.

Bloomberg Barclays Indices represent many types of debt instruments, varying from debentures and asset-backed bonds to commercial paper issues. To capture long-duration debt, we include the following subindices of the Bloomberg Barclays U.S. Universal Index: Corporate Investment Grade (IG), Corporate High Yield (HY), 144A Ex Aggregate, corporate issues of Mortgage-Backed Securities (CMBS) and Fixed Rate Asset-Backed Securities (ABS). All of the bonds in the above subindices have fixed-rate coupon, are fully taxable, include both senior and subordinate debt, and have at least one year to maturity.[6] We further augment our debt measure with corporate issues of taxable municipal bonds, in particular, Industrial Development Revenue Bonds (IDR), Pollution Control Revenue Bonds (PCR), and U.S. Convertibles Composite Index, since they are outside of the Universal Index. To measure debt of short duration, we include the following Bloomberg Barclays subindices: corporate issues of Asset-Backed Securities Floating Rate (ABS FRN), Floating Rate Notes (FRN), and Floating Rate Notes High Yield (FRN HY). The floating-rate securities in the above subindices may have longer maturity, but their interest rate durations are typically less than one year.

While Bloomberg indices aim to provide accurate market measurements of public debt, they face several limitations as they only include issuances above the minimum size, and mainly focus on capital market securities of maturities 1 year or longer.

[6]The Universal Index excludes bonds that have less than one year to maturity as they become money market eligible. Corporate issues of ABS and CMBS must have a remaining average life of at least one year, while bonds that convert from fixed to floating rate will exit the subindices one year prior to conversion.

Even though we are able to supplement our measurements with several subindices of corporate issues of floating rate notes, we are missing a portion of long-term debt due less than in year, short-term borrowing, for example, through commercial paper, as well as smaller corporate bond issuances.

To help assess robustness of our results to these measurement issues, we also consider corporate debt data from the Mergent Fixed Income Securities Database (FISD), Flow of Funds, and Capital IQ Compustat databases. These sources have several shortcomings themselves relative to the benchmark Bloomberg indices. Market-value sources for bond data such as TRACE database have limited coverage before mid-2000s. Data platforms with a more reliable coverage represent book, rather than market, values of debt, and the two can deviate from each other especially at times of high interest rates. Bond net issuances, which are the focus of our current analysis, are not fully accounted by the changes in book values, either: while bond issuances generally happen at par, it is not the case for corporate bond repurchases. Quantitatively, Davydiuk et al. (2023) find that quarterly changes in book values have around an 80% correlation with net repurchases, so they represent a noisy proxy for market-valued net issuances. Further, data sources based on accounting statements typically lump together corporate bonds issued by pubic corporations with other forms of debt. For example, Compustat or NIPA tables combine public and private (e.g., bank) debt, and include various forms of payments into interest rate charges unrelated to coupons on corporate bonds. For another example, Flow of Funds include debt issues by both public and private firms.

Appendix Figure A.1 compares bond coverages by the Bloomberg Barclays Indices, Flow of Funds, Mergent, and Compustat. Based on the underlying book values, Bloomberg Barclays Indices track Mergent quantities fairly well: the two exhibit similar trends and growth over the sample period. The book value of bonds from Mergent exceeds Bloomberg Barclays by less than 10% over our sample. This discrepancy is due in part to the fact that Bloomberg Barclays Indices omit debt at shorter maturities. For the Flow of Funds, the data comprise both public and private firms, and the total debt value is over 1.5 times that of Bloomberg Barclays or Mergent. Finally, Compustat data include bank debt, so the level of total debt is several times larger than that based on other sources.

Equity-related data. To measure equity-related variables, we use the Center for Research in Security Prices (CRSP) Monthly Stock File. This data set provides equity price per share (*prc*) and share data (*shrout*) at the individual security level, as well as holding-period returns including and excluding dividends, *ret* and *retx*, respectively. We include only common stocks listed on the NYSE, Amex, NASDAQ, and NYSE Arca stock exchanges. Similar to Davydiuk et al. (2023), Boudoukh et al. (2007) and Larrain and Yogo (2008), we measure individual stock i's net issuances in month t as the change in shares outstanding valued at the month-end share price,

$$prc^*_{it} \times shrout^*_{it} - prc^*_{it-1} \times shrout^*_{it-1} \times (1 + retx_{it}) \,, \tag{1}$$

where the stock price and number of shares are appropriately adjusted by the cumulative adjustment price and share factors that account for splits and other corporate events, specifically, $prc^*_{it} = prc_{it}/cfacpr_{it}$ and $shrout^*_{it} = shrout_{it} \times cfacshr_{it}$. We also account for changes in entity structure due to initial public offerings (IPOs), mergers, acquisitions, and exchanges. We use CRSP delisting data to identify securities with delisting codes of $2xx$ and $3xx$, and measure their delisting price (*dlprc*) and delisting return (*dlretx*) to account for repurchases during mergers and acquisitions. We aggregate the firm-level data and compute market valuations, dividends, returns, and net issuances at the aggregate level.

For Mergent, Compustat, and CRSP databases, we further identify the financial sector through the SIC codes 6000–6799 and compute equity and bond net issuances for the financial sector. Within financial institutions, to match the classification of the Bloomberg Barclays Indices, we compute net issuances for banks (the SIC codes 6000–6100), finance companies (the NAICS code 5222), brokers, asset managers, and exchanges (the SIC codes 6211, 6722, end 6231), and insurance companies (the SIC codes 6300–6500).

Macroeconomic data. We collect data on GDP and its components from the Bureau of Economic Analysis (BEA) tables. We additionally collect data on the gross private domestic investment from NIPA (Table 5.1 Saving and Investment by Sector). The data on aggregate firm earnings are from Shiller (2016). Data on Consumer Price Index (CPI) come from the Bureau of Labor Statistics. The price level is normalized to one in December 2009. All nominal quantities are deflated by the CPI to obtain real measures.

Data on the credit spread calculated as the difference between Baa and Aaa corporate bond yields are from the Moody's. Additionally, we collect the credit spread index based on individual bond prices traded in the secondary market constructed by Gilchrist and Zakrajšek (2012). We collect data on the 3-month T-Bill rate and yield slope calculated as the difference between 10-year and 1-year Treasury notes from the U.S. Department of the Treasury. To capture the monetary policy stance, we also use monetary policy shocks constructed by Nakamura and Steinsson (2018) and the Federal funds rate factor constructed by Gürkaynak, Sack, and Swanson (2004). To measure the economic uncertainty, we rely on VIX from the CBOE and uncertainty indexes constructed by Jurado, Ludvigson, and Ng (2015).

Bank data. We use Table H.8 Assets and Liabilities of Commercial Banks from the Flow of Funds to collect the data on bank deposits. In our analysis, we focus on the sample of all commercial banks in the U.S. To assess the importance of bond funding for banks, we also rely on Table L.111 U.S. Chartered Depository Institutions to obtain data on total assets, liabilities, deposits and corporate bonds for the U.S. chartered depository institutions.

2 Empirical Analysis

2.1 Net Issuance Measures

For our empirical analysis, we focus on net issuances of bond and equities within the financial and nonfinancial sectors. We aggregate the net issuance measures over the past four quarters to remove seasonality, and de-trend them by dividing by the level of real GDP. For ease of notations, we denote the scaled bond net issuances by the financial and nonfinancial sectors as BNI^F and BNI^{NF}, respectively, and use ENI^F and ENI^{NF} to refer to the equity net issuances within these sectors. In a similar way, we use the four-quarter scaled changes in time deposits to measure another source of capital available for the financial sector.

Table 1 shows summary statistics for bond and equity net issuances by the financial and nonfinancial sectors, and Figure 2 compares the evolution of bond net issuances by financials, BNI^F, to those by nonfinancials, BNI^{NF}, or to the equity issuance by financials, ENI^F.

Over the 1990-2019 sample period both sectors have raised capital through equity and bond instruments: the average net issuances are all positive. The net issuances tend to be smaller and less volatile for financials than nonfinancials, and all the measures are quite persistent, with AR(1) coefficients ranging between 0.82 and 0.92 on quarterly frequency. The net issuances are mildly positively correlated across sectors, and negatively across sources of capital in line with findings by Ma (2019).

In terms of bond characteristics, we find that financial companies tend to issue predominantly in the investment-grade space. By the end of our sample, the market value of investment-grade public debt issued by financials comprises about 30% of the entire investment grade market, while their high-yield debt makes up just under 10% of high-yield bonds. At the same time, financials tend to issue lower-duration debt compared to other firms. As shown in Appendix Figure A.2, the average duration of investment-grade bonds issued by financials is just under 6 years as of 2019 year-end, while that for bonds issued by both sectors is about 7.5 years.

2.2 Economic Cyclicality

We next consider the timing of bond net issuances by financial institutions, and how these relate to aggregate measures of economic and market conditions. Specifically, we explore three dimensions of the economic cycle: the business, financial, and monetary policy cycles. To measure the business cycle, we use such standard indicators as growth rates in real GDP, investment, or corporate earnings. For the financial cycle, we analyze excess market returns, credit spreads, or Jurado, Ludvigson, and Ng (2015) uncertainty indexes. To evaluate the monetary policy cycle, we rely on changes in short-term rates and Nakamura and Steinsson (2018) or Gürkaynak et al. (2004) monetary policy shock estimates.

The bottom panel of Table 1 documents the cyclicality of bond and equity net issuances with respect to the economic cycle. The Table shows that bond and equity net issuances by financials and bond net issuances by nonfinancials are largely acyclical with respect to the business, financial, and monetary policy cycles. Indeed, most of the correlations of net issuances with the economic cycle indicators are below 20%. The evidence suggests modest pro-cyclicality of equity net issuances by nonfinancials with respect to the business cycle indicators and counter-cyclicality with respect to the credit spread.

To further understand the dynamic relation between the net issuances and economic cycle, we expand our contemporaneous evidence and examine the lead-lag correlations in Figures 3–5. To better isolate cyclical properties of the series, in these graphs we aggregate the quarterly business and monetary policy variables, as well as the excess market returns over the past four quarters. Recall that our net issuance measures are already taken over the past year.

Consistent with the evidence in Table 1, the Figures shows lack of a contemporaneous relation between net issuances and business, financial, and monetary policy variables. Interestingly, however, bond net issuances by financials exhibit a consistent and significant lead and lag correlation pattern, which is absent for all the other measures of net issuances. Specifically, BNI^F tends to increase around the inflection points of the business, financial, and monetary policy cycles. Bond net issuances by financials increase following the periods of high growth rates in GDP, investment, and corporate earnings (Figure 3), high stock returns, or low credit spreads and financial uncertainty (Figure 4), and monetary policy tightening (Figure 5). The correlations switch to significantly negative for growth rates in GDP, investment, earnings, stock market returns, and monetary policy shocks one year ahead, while for credit spread and financial volatility they swith to significantly positive. Notably, neither bond issuances by nonfinancials or equity net issuances exhibit any clear pronounced relation to the lags or leads of the economic cycle variables.

2.3 Predictive Relation

In the previous section we showed that bond net issuance by financials, BNI^F, plays a unique role among other net issuance variables to anticipate a downturn in the economic cycle. In this section, we expand on this evidence and formally evaluate the scope, significance, and relative importance of the information in BNI^F controlling for other predictors of economic and financial market activity.

Our empirical analysis is based on the predictive regression specification:

$$\frac{1}{h}\sum_{j=1}^{h} y_{t+j} = const + \beta' NI_t + \gamma' z_t + error_{t,t+h}, \tag{2}$$

where y is the variable of interest, $NI = [BNI^F \ BNI^{NF} \ ENI^F \ ENI^{NF}]$ is a vector of net issuance measures, and z is a vector of controls. Our benchmark controls include market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and real GDP growth. We also include growth in time deposits to control for an additional source of capital for the financial sector. In our benchmark analysis we show the results for one-year ahead predictions, that is, $h = 4$ quarters, and present additional evidence for h ranging from 1 quarter to 3 years later in the robustness analysis.

Economic Growth. Table 2 shows the evidence for predictability of future growth rate in GDP, investment, and corporate earnings by the net issuance measures.

High bond net issuances by financials predict a significant decline in one-year ahead real economic growth. The slope coefficients are negative and significant for all the three economic growth proxies and across all the specifications. By itself, BNI^F predicts 11% of the variation in future GDP growth, 25% in investment growth, and 45% in corporate earnings (column 1). Interestingly, the effect and significance of BNI^F often strengthens as we add other economic and financial market controls (see, e.g., columns 1 through 5 for GDP and earnings growth rates), and it remains an important determinant of the expected growth. Indeed, dropping BNI^F from a list of predictors lowers the R^2 from 51% to 38% for GDP, from 61% to 47% for investment, and from 52% to 24% for earnings growth (columns 5 and 6). None of the other net issuance measures come close to have a similar effect on future growth.[7]

To illustrate the predictive ability of the variables, Figure 6 shows the realized and predicted business cycle variables. The predictions are based on the univariate specification with BNI^F alone (column 1 in Table 2) and full specification with all the net issuance measures and controls (column 5). The Figure demonstrates that bond net issuances by financials can successfully predict business cycle fluctuations in GDP, investment, and earnings growth rates. For earnings in particular, adding other predictors do not materially alter the forecasts; indeed, as documented in columns 1 and 5 of the bottom panel in Table 2, adding full list of controls to BNI^F only marginally increases the predictive R^2 from 45% to 52%.

[7]Time deposits do not have a significant effect on business, financial, or monetary policy cycle variables, so for parsimony we omit reporting its coefficient in this and subsequent Tables.

Equity and Corporate Bond Returns. Table 3 shows the evidence for predicting one-year-ahead excess returns on a broad equity market index, and aggregate indices of investment-grade and high-yield corporate bonds.

Our first key finding is that an increase in net issuances of corporate bonds by financials predicts a large decline in future excess returns across these asset classes. The predictive coefficients on BNI^F are negative and significant across all the control combinations, and nearly all the absolute values of t-statistics are above 3 and reach 6 for high-yield bond returns.

The bond net issuances by financials capture a sizeable share of the variation in future excess returns. The R^2s based on BNI^F alone are 16% for investment-grade corporate bond returns, and reach nearly 30% for equity and 35% for high-yield bond returns, as shown in column 1 of Table 3. Adding bond net issuances by nonfinancials barely changes these results, as the predictive coefficients on BNI^{NF} are insignificant (see column 2 in the Table). Once we include the equity issuances by the financial and nonfinancial sectors (column 3), the predictive R^2s increase to just under 40% for equity returns and 50% for high-yield bond returns. The informational content of the equity net issuance measures, however, can be largely subsumed by other common predictors of returns (columns 3 and 5). At the same time, excluding BNI^F in the setup with a full list of controls lowers the R^2 from 50% to 37% for equity index, from 44% to 42% for investment bond returns, and from 67% to 58% for high-yield bonds.[8] As such, bond net issuance by financials stands out among other net issuance measures as an economically and statistically meaningful predictor of excess returns on aggregate equity and corporate bonds, especially of high-yield grade.

We plot the realized and expected returns on equity and corporate bonds in

[8] For robustness, we show that our results continue to hold when we compute standard errors using the reverse regression approach of Hodrick (1992). This approach allows us to account for the overlapping nature of returns. We further account for potential small-sample bias, such as the Stambaugh (1999) bias, by computing p-values from a parametric bootstrap procedure. More details on these standard error corrections can be found in Haddad and Sraer (2020). Appendix Table A.1 shows that for the predictive coefficients on BNI^F the absolute values of t-statistics are above 2 and the bootstrapped p-values are below 0.02.

Figure 7. We emphasize three findings from this analysis. First, BNI^F correctly anticipates price declines in recessions and subsequent rebounds afterwards. Second, including all the other predictors to BNI^F does not materially affect the forecasts, especially in the post Financial Crisis period. Finally, the predictive success of BNI^F is not limited to around-crisis episodes: bond net issuances appear to track well the movements in subsequent returns in normal times as well.

Credit Spreads. Table 3 shows that bond net issuance by financials can forecast high-yield bond returns much better than the investment grade ones: the slope coefficients on BNI^F and the R^2 double for high-yield relative to investment bond indices. This evidence suggests that BNI^F is related to the credit premium embedded in high-yield bonds, which we can test using the prior predictive regression setup in equation (2).

In particular, we consider changes in one-year ahead credit spreads measured either by the standard BAA-AAA corporate bond yield spread and the Gilchrist and Zakrajšek (2012) (GZ) credit spread index constructed from individual bond prices traded in the secondary market. Table 4 confirms that the coefficients on BNI^F remain positive and statistically significant across all the control specifications, while the effects of any other issuance measures are essentially zero. The results are very similar for the two measures of credit spreads, the main difference being that the slope coefficients on BNI^F for GZ spread are double those for the BAA-AAA spread. By itself, BNI^F can explain 30% of the variation in one-year ahead credit spreads (column 1). While other predictors, and in particular, the current level of the spreads, can account for 53% of the variation in future spreads, adding bond net issuances by financials can further increase the R^2 to 66% (column 5 and 6). Similar to equity and bond returns, bond net issuances by financials helps correctly predict the spikes and rebounds in the premium around the recessions and the normal-time variation in the spreads especially in the post Financial Crisis period (Figure 7).

Uncertainty Measures. The lead-lad correlation evidence in Figure 4 suggests that high bond net issuances by financials anticipate an increase in future economic uncertainty. We formally evaluate the predictive relationship through a regression setup in equation (2). Further, to extend the evidence beyond the uncertainty index used in Figure 4, we also consider predicting changes in VIX and macroeconomic uncertainty index of Jurado et al. (2015).

Table 5 shows that BNI^F alone explains 14% of the one-year change in VIX, 26% in the financial uncertainty index, and 37% in the macroeconomic index. The slope coefficients are positive and significant with t-statistics of 3.6 and above. The effect of BNI^F remains largely unchanged as we add other net issuance measures (columns 2 and 3); in fact, none of them are significantly related to movements in future uncertainty. Bond net issuances by financials remain a significant predictor of macroeconomic uncertainty even with a full list of additional controls (columns 4 and 5 in Panel b). In fact, dropping BNI^F from the list of predictors lowers the R^2 from 62% to 46% (columns 5 and 6). On the other hand, while BNI^F remains positively related to future changes in VIX and financial uncertainty, its effect is halved and its significance disappears once we add all the controls (Panels a and c).

Figure 7 shows the realized and predicted changes in future financial uncertainty index and VIX, based on BNI^F alone and with a full list of controls. A large amount of variation in VIX is driven by transitory spikes, unlike the smoother low-frequency fluctuations in the Jurado et al. (2015) indices. This can explain our findings of lower predictability of VIX compared to financial and especially macroeconomic uncertainty indices. Similar to the evidence for other economic and financial variables, BNI^F captures well the variation in future uncertainty, and especially in the build-up and post the Financial Crisis.

Interest Rates. Table 6 shows the evidence for predictability of future monetary policy shocks, and the bottom panel of Figure 8 plots the realized and predicted values from the regression (2). As before, we consider three proxies for the monetary policy stance: quarterly changes in 3-month Treasury bill rates, the Nakamura and Steinsson (2018) monetary policy shock, and the Federal funds rate factor of Gürkaynak, Sack, and Swanson (2004).

Table 6 confirms that for these three proxies and in all the considered control specifications, an increase in bond net issuance by financials anticipate an expansionary monetary policy. Indeed, the coefficients are negative and significant in univariate specifications with BNI^F alone (column 1), and with all the other net issuance measures as controls (columns 2 and 3). By itself, bond net issuances by financials explain 16% of the next-year changes in 3-month short term rate, 12% in the next-year NS monetary policy shocks, and 6% in the GSS Federal Funds rate factor. The slope estimates on BNI^F remain unchanged and significant for Treasury bill rates and the NS monetary policy shocks as we add the full list of controls (columns 4 and 5). The effect of BNI^F becomes insignificant with all the controls in GSS federal funds factor regression.

Figure 8 depicts the realized and predicted monetary policy shocks. BNI^F correctly anticipates changes in monetary policy stance in and after the recessions, though, a large share of the variation remains unexplained, consistent with relatively low predictive R^2s. In the subsequent section, we show that the explanatory power of bond net issuances by financials increases at longer horizons beyond a year ahead.

Does the predictability of short-term rates have implications for the long end of the yield curve? Formally, long-term rates rates incorporate changes in expected future short term rates and movements in the bond risk premium. Because high net issuances predict an expansionary monetary policy in the future, they should be associated with a relative drop in long-term rates in absence of offsetting movements in the bond risk premium. This is indeed the case, as shown in the lead-lag correlation plot in Figure 9. In fact, the contemporaneous correlation between the yield slope and bond net issuances by financials is nearly -50%. The direction of the correlation is fully consistent with the logic of the expectations hypothesis. In addition, it also appears that times of high net issuances are associated with a decline in the government bond risk premium, as suggested by the lower panels of the Figure which use the Adrian, Crump, and Moench (2013) estimates of the term premium in the bond markets. This can further compress the yield curve at times of high BNI^F. In sum, both the expectations hypothesis and the bond risk premium channels appear to work in the same direction to generate a negative correlation between the yield slope and bond net issuances by financials.

3 Economic Mechanism

To assess potential economic mechanisms behind our main empirical findings, we examine the composition of the financial sector, and identify the type of financial institutions which time their bond issuances the most. Our analysis reveals that the predictability of bond issuances is primarily driven by regulated financial intermediaries. We argue that these regulated firms issue corporate bonds to create a cushion of relatively safe and inexpensive capital in anticipation of worsening economic conditions and a subsequent tightening of regulatory constraints.

3.1 Financial Institutions

Our benchmark measure of bond net issuance by financials is based on the aggregate Bloomberg Barclays financial index. In particular, it includes bond subindices pertaining to banks; finance companies (FCOs); brokers, asset managers, and exchanges (BAME); insurance companies; and real estate investment trusts (REITs).

The index providers allow us to decompose the aggregate index into its sub-components starting in 1994. Figure 10 shows the evolution of the market values and bond net issuances associated with the above sub-indices over time. Banks make up the largest sub-component of the financial sector index, and by the end of the sample comprise about two thirds of its value. Further, post Financial Crisis banks are responsible for nearly all of the fluctuations in bond net issuances by financials. The market values of corporate bonds by finance companies and BAME were growing prior to the Crisis, and their net issuance activity contributed to the variations in aggregate net issuances. As evident from the Figure, their role significantly diminished post 2008. Finally, bond net issuances by REITs and insurance companies are generally smaller and more stable over time.

One has to be careful interpreting these numbers, however, because some of the fluctuations in sub-indices could reflect changes in the entity structure of the firms and their movements in and out across the categories. This is especially pertinent to the period around the Financial Crisis. In particular, Goldman Sachs and Morgan Stanley switched their legal status as of September of 2008, and became bank holding companies. Bear Sterns and Lehman Brothers defaulted in 2008, and were acquired by JP Morgan Chase and Barclays, respectively. We conjecture that such transitions can account for a sharp decline (increase) in the market value of bonds issued by BAME (banks) in 2008, and a subsequent dominance of bank bond net issuances, shown in the Figure 10. Another big drop in the sub-index is attributed to the change in the classification scheme by Barclays. Specifically, in October 2003, the captive finance companies were removed from the Finance Companies sub-index. All securities in the captive finance sector were reclassified according to the sector of the parent company.

To reduce the impact of such changes in entity structure, we sub-divide the aggregate index into two components, $Banks + BAME$ and the rest, and measure bond net issuances for these two sub-sectors separately. In the spirit of our earlier predictability exercise, we then test whether these two sub-components of aggregate bond net issuances have predictive power for future changes in the economic cycle.

Table 7 shows that bond net issuances by $Banks + BAME$ are primary drivers of our aggregate BNI^F evidence. Bond net issuances by $Banks + BAME$ are significant predictors of future business and market cycle indicators, and two out of three monetary policy proxies. Bond net issuances by other financials do not play a significant role for most of these variables. When we compare the predictive power of bond net issuances by financials versus by $Banks + BAME$, we get similar results (see Appendix Table A.2).

The $Banks + BAME$ category aggregates intermediaries with various degrees of financial regulation. To better isolate the financial regulation margin, we focus on global systematically important banks (GSIBs), which are subject to tightest regulatory oversight. To this end, we switch to data from the Mergent database, which allow us to measure bond net issuances at the individual firm level. The measurements, however, are based on book rather than market values, and thus can represent noisier proxies for the bond net issuances, as discussed in Davydiuk et al. (2023).

First, we repeat our predictability regressions for the $Banks + BAME$ sub-group of financial institutions using the Mergent data. As shown in Table 8, we continue to find quite similar predictability patterns as with our benchmark market-based Bloomberg estimates. These results underscore the robustness of our key findings across various data sources. Next, we further separate the $Banks + BAME$ sub-group into the GSIB and non-GSIB components. For nearly all the considered measures of economic cycle, bond net issuances by GSIBs are significant predictors of the future cycles, while bond net issuances by non-GSIBs do not add any information above and beyond that of GSIBs (see Table 9). Non-GSIBs appear marginally significant for GSS shocks.

3.2 Regulatory Benefits of Bonds

Our empirical evidence highlights a precautionary benefit of bond capital. In particular, we argue that large and sophisticated financial intermediaries strategically time their bond net issuances in anticipation of deteriorating economic conditions and ensuing tightening of regulatory constraints.

Under the Basel Accords, banks must adhere to both Tier 1 and Tier 2 capital requirements. Basel III specifies that Tier 1 capital, which includes common equity and certain types of preferred stock and hybrid instruments, must be at least 6% of a bank's risk-weighted assets (RWA). Additionally, the total capital, which comprises both Tier 1 and Tier 2 capital, must be at least 8% of a bank's RWA. Tier 2 capital serves as supplementary capital and includes instruments such as subordinated debt. Although banks can fulfill Tier 2 capital requirements with equity capital, issuing equity is often more expensive and carries potential stigma. Moreover, equity capital tends to be more volatile than debt and thus offers lower precautionary benefits. As a result, banks might prefer to issue bonds instead. The capital requirements for GSIBs are even more stringent than for other banks. In particular, they are subject to an additional capital surcharge, which ranges between 1% to 3.5% of RWA depending on the size and systemic impact of a bank.

Other forms of regulation are also explicitly or implicitly affected by bond capital. Under the latest Basel regulations, GSIBs are required to meet the Total Loss-Absorbing Capacity (TLAC) standards: the combined amount of Tier 1 and Tier 2 capital, as well as bail-in senior debt, must be at least 18% of a bank's RWA. This TLAC requirement explicitly encourages banks to issue corporate bonds as a means to fulfill their capital needs. Additionally, bond capital can help banks meet the Net Stable Funding Ratio (NSFR) by providing a source of long-term funding, comply with the Liquidity Coverage Ratio (LCR) and pass stress tests by enhancing their overall liquidity.

These regulatory constraints are likely to be more binding during adverse economic conditions, which are characterized by a decline in economic growth, a drop in aggregate stock and corporate bond market valuations, an increase in credit spreads and uncertainty, as well as monetary policy easing. By issuing bonds in advance, banks can take advantage of an accommodating interest rate environment and create a cushion of relatively safe and cost-effective capital to satisfy regulatory requirements. Overall, this regulatory channel can rationalize why high bond net issuances by financial intermediaries signals reversals in the economic cycle.

We provide additional empirical evidence to support our economic story. First, we argue that standard economic margins used to determine debt choice of nonfinancial firms are unlikely to play a significant role for debt choice of financial intermediaries. Indeed, though financial institutions account for a sizable fraction of the total public debt market, corporate bonds are not their major source of financing. Examining the balance sheet data for U.S. chartered depository institutions reported by the Flow of Funds, we find that the book value of bonds comprised just 1.3% of their total assets in 2017 (3.3% in 2010). In contrast, deposits accounted for 76% of total assets in 2017 (69% in 2010). The *public debt* leverage ratios for banks are thus an order of magnitude below those for nonfinancial firms, making the traditional margins for debt choice, such as tax shields from interest payments, unlikely to explain bond issuances by financial intermediaries. Nonetheless, the documented levels of bond issuances by the financial sector represent significant amounts that contribute towards meeting regulatory requirements. For U.S. chartered depository institutions, the book value of bonds comprised about 10 of their book equity in 2017 (27% in 2010).

Next, we show that the informational content of bond net issuances is directly related to the potential regulatory benefits these issuance offer to firms. Recall that within the financial sector, bond net issuances by $Banks + BAME$ drive the majority of the predictive power for the reversals in the economic cycle. Further, within the financial intermediaries, it is the bond net issuances by large, systemically important, and more heavily regulated financial institutions (that is, GSIBs), which are informative about the changes in future business, market, and monetary policy conditions. At the same time, we find that bond net issuances by finance companies

(FCOs), which represent less regulated institutions in the financial sector, do not have any predictive power for future changes in the economic cycle (see Table 10). If anything, bond net issuance by FCOs predicts future GDP growth rate and changes in 3-month T-bill rate with a positive, rather than negative, sign. Moreover, recall that net issuances by nonfinancial firms do not exhibit any predictive power either.

The regulatory channel behind bond net issuances can further be corroborated by preferred stock net issuances by $Banks + BAME$. Preferred stocks stand between common equity and bonds, and also help banks to satisfy their capital requirements. Specifically, noncumulative and nonredeemable preferred stock qualifies as Tier 1 capital, while other preferred stock qualifies as Tier 2 capital. Table 11 reports the estimation results, in which we focus on preferred stock net issuances by $Banks + BAME$ as a key predictor. For reference, we also report the coefficient estimates for bond net issuances by $Banks + BAME$ in the overlapping sample period. We find that the predictability evidence for preferred stock net issuances is similar to that of bond net issuances. The coefficient estimates have the same sign and comparable statistical significance for all economic cycle indicators, except for NS monetary policy shock.

3.3 Banking-Specific Dimensions of Economic Cycle

Our key evidence focuses on the information content in bond issuances by financial intermediaries about future the aggregate economic and financial market variables. The underlying premise is that regulated financial intermediaries issue bonds in accommodating environments in anticipation of a decline in economic fundamentals. And, as such, bond net issuances by financials tend to coincide with the inflection point in the economic cycle.

We further document that bond net issuances by financials are closely linked to banking-specific aspects of the economic cycle. First, we consider a measure of debt cost specific to the banking sector — the option-adjusted spreads (OAS) for investment-grade bonds issued by banks. Figure 11 shows that financial intermediaries issue bonds at times of lowest OAS, and in anticipation of an increase in spreads about a year or two in the future. While qualitatively the findings are consistent with aggregate corporate spread evidence in Figure 4, the quantitative magnitudes of the correlations are larger for the banking-specific spread measure.

In a similar vein, bond net issuances by financial intermediaries tends to occur at the inflection point of the lending quality cycle, as shown in Figure 12. Net issuances occur following periods of relatively lax standards, and they anticipate stricter lending conditions one-to-two years in the future. Interestingly, while fluctuations in lending standards have a strong business cycle component, bond net issuances by financials contain additional information about future lending conditions above and beyond standard economic and financial market variables. As shown in Table 12, BNI^F is a strong and statistically significant predictor for future lending standards once we add our benchmark controls.

4 Robustness and Extensions

4.1 Issuances versus Repurchases

Our benchmark BNI^F variabl nets bond issuances from repurchases. We next disaggregate the measure into bond issuances and repurchases separately, and assess their economic importance to capture predictive variation in economic and financial market variables.

Bloomberg Barclays aggregate indices do not provide a way to disentangle issuances from repurchases. Instead, we rely on Mergent database to identify firms in the financial sector, and use changes in book values of individual bond issuances and redemptions to proxy for issuances and repurchases.

Appendix Table A.3 show the predictability results for our future business, market, and monetary cycle variables by the issuances and repurchases of bonds inside the aggregate financial index. Generally, the two have have similar in magnitude but opposite in sign effects on the considered variables. Broadly, we conclude that both components of net issuances play a comparable role to account for the empirical evidence.

4.2 Alternative Measurements and Inference

Alternative Horizons. Our benchmark evidence concentrates on a one-year predictive horizon. To assess the results at other frequencies, we rerun the regression in equation (2) at horizons h of 0 quarters, 1 quarter, 2 years, and 3 years. For parsimony, we focus on the univariate specification with BNI^F alone.

Appendix Figures A.3 and A.4 show the slope coefficients on BNI^F and the R^2s at 0 quarters to 3 year regression horizons. As a general rule, the predictive ability of BNI^F peaks at about 1 to 2 years. Indeed, the R^2s and the slope coefficients, in absolute values, are largest at these frequencies for earnings, equity returns, and changes in credit spreads and financial uncertainty. The slope coefficients for GDP and investment growth become larger and more negative past 2 years ahead, and both the effects and the R^2s become more pronounced with the horizon of the regression for the three monetary policy variables.

Alternative Samples. To gain power, our benchmark analysis is based on the entire 1990–2019 sample. However, the realized and predicted plots often suggest that the predictive ability of bond net issuances by financials may be time-varying, and in particular, is strengthened around and after the Financial Crisis. To formally assess the time-variation in the predictability evidence, we rerun the benchmark regression specifications in equation (2) over the 10-year rolling windows. For parsimony, we focus on a univariate specification with BNI^F alone.

Appendix Figures A.5 and A.6 show the patterns in the predictive slope coefficients and the R^2s across time. As a general rule, the key relations between bond net issuances by financials and the predictive variables become manifest in the later part of the sample, post 1995 and especially post the Financial Crisis. The negative association between BNI^F and GDP, investment, earnings, equity returns, and changes in Tbill rates start becoming significant in 10-year samples ending around 2002–2004. The significance of the effects and the amount of predictability for the credit spreads and financial uncertainty peak in samples including and post Financial Crisis. For many of the variables, the predictability relation also weakens at the very end of the sample.

Alternative Controls. Our benchmark analysis uses common controls for the economic, financial, and credit market conditions, such as the market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, GDP growth, and change in time deposits. Admittedly, the literature has come up with other more powerful predictors of future prices. In this section, we examine the power of bond net issuances by financials to predict future equity returns controlling for these alternative indicators. In particular, we consider the equity price-dividend ratio, net payout yield from Boudoukh et al. (2007), variance risk premium from Zhou (2018), security broker-dealers (SBD) leverage ratio from Adrian et al. (2014), gold-platinum ratio of Huang and Kilic (2019), and consumption-wealth ratio from Lettau and Ludvigson (2001).

Appendix Table A.4 shows that by themselves, these variables are significant predictors of next-year market returns with a single exception of the consumption-wealth ratio. Interestingly, our BNI^F delivers highest R^2 compared to all the other variables (e.g., 17% for gold-platinum ration versus 27% for BNI^F). The last to columns incorporate all the predictors together. Remarkably, in this "kitchen-sink regression," BNI^F remains a significant predictor of future equity returns, and its effect does not materially change: the slope coefficient is -12.75 in a univariate specification, and -10.17 in column 7. The only other two variables which retain their significance are the variance risk premium, and the gold-platinum ratio.

Alternative Datasets. We use Bloomberg Barclays aggregate indices for our construction of the benchmark bond measures. As we argued in Section 1, they represent the most accurate and comprehensive market measures of corporate bond quantities and valuations. Nevertheless, for robustness, we re-assess our benchmark findings using the bond issuances constructed from alternative data sources, such as unlike Mergent, Flow of Funds, and Compustat databases.

Appendix Figures A.7 and A.8 summarize our key predictability evidence using the bond data from these other data sources. Generally, the results are consistent with our benchmark findings based on Bloomberg Barclays indices. Most of the effects have the same signs, and many retain their significance, though, due to more noise and data issues, the coefficients become less significant, and the R^2s are lower than in the benchmark approach.

Conclusion

Financial sector is an active player in the public debt market, yet little is known about economic and empirical properties of its bond net issuances. Our analysis reveals that aggregate bond issuances by financial institutions follow a distinct timing with respect to economic and financial market fundamentals compared to other forms of capital inflows, such as bond net issuances by nonfinancial firms or equity net issuance by financial and nonfinancial firms. Specifically, we document that net issuances of corporate bonds by financial institutions coincide with the inflection points in the business, market, and monetary policy cycles. An increase in bond net issuances serves as a leading indicator of the forthcoming economic and financial downturns, as well as the periods of monetary policy easing.

To reconcile our novel empirical evidence, we argue that large, sophisticated, and regulated financial intermediaries actively time their bond issuances to take advantage of accommodating interest rate environment and build-up bond capital in anticipation of a decline in economic fundamentals. Going forward, it would be important to develop an economic model that micro-founds our empirical evidence. Another promising avenue for research is to reexamine our aggregate evidence using the micro-level balance sheet data for financial intermediaries.

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Tables and Figures

Table 1: Summary Statistics

	Bond NI by Fin	Bond NI by Nonfin	Equity NI by Fin	Equity NI by Nonfin
Mean	0.45	1.56	0.48	0.64
Std	0.67	0.99	0.58	2.19
AC(1)	0.86	0.82	0.86	0.92
		Cross-Correlations		
Bond NI by Nonfin	0.18^{*}			
Equity NI by Fin	-0.29^{***}	0.04		
Equity NI by Nonfin	-0.03	-0.32^{***}	0.18^{*}	
		Correlations		
Business Cycle:				
GDP Growth	0.14	-0.02	-0.01	0.33^{***}
Investment Growth	0.12	-0.11	0.03	0.27^{***}
Earnings Growth	0.05	-0.02	0.25^{***}	0.14
Market Cycle:				
Excess Equity Return	-0.03	0.13	0.13	0.09
Credit Spread	-0.20^{**}	0.11	0.05	-0.41^{***}
Financial Uncertainty Index	-0.11	0.09	0.17^{*}	0.12
Monetary Cycle:				
Change in 3-month T-Bill Rate	0.06	-0.27^{***}	-0.00	0.10
NS Monetary Policy Shock	0.12	-0.22^{**}	-0.10	0.34^{***}
GSS Federal Funds Rate Factor	-0.00	-0.17^{*}	-0.07	-0.07

The Table reports summary statistics for corporate equity and bond net issuances by financials and nonfinancials. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table 2: Economic Growth Predictability

Panel (a): GDP Growth

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	-0.79^{**}	-0.80^{**}	-0.80^{**}	-1.19^{***}	-1.17^{***}	
	(-2.10)	(-2.17)	(-2.59)	(-4.25)	(-4.56)	
Bonds NI by Nonfinancials		0.03	0.16		-0.07	-0.15
		(0.18)	(0.95)		(-0.52)	(-0.85)
Equity NI by Financials			0.08		0.09	0.39
			(0.21)		(0.27)	(0.99)
Equity NI by Nonfinancials			0.18		-0.05	0.03
			(1.14)		(-0.36)	(0.22)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.11	0.11	0.17	0.51	0.51	0.38

Panel (b): Investment Growth

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	-5.91^{***}	-6.05^{***}	-5.52^{***}	-6.02^{***}	-5.85^{***}	
	(-4.91)	(-5.00)	(-4.41)	(-4.49)	(-4.53)	
Bonds NI by Nonfinancials		0.53	0.75		-0.53	-0.90
		(0.79)	(0.91)		(-0.86)	(-1.24)
Equity NI by Financials			2.09		1.55	3.05^{**}
			(1.23)		(1.19)	(2.06)
Equity NI by Nonfinancials			0.40		-0.54	-0.15
			(0.53)		(-1.24)	(-0.26)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.25	0.25	0.28	0.59	0.61	0.47

Panel (c): Earnings Growth

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	-51.34^{***}	-51.85^{***}	-48.01^{***}	-55.86^{***}	-54.34^{***}	
	(-3.64)	(-3.73)	(-3.64)	(-3.60)	(-3.75)	
Bonds NI by Nonfinancials		1.94	-0.74		-2.59	-6.02
		(0.54)	(-0.23)		(-0.92)	(-1.18)
Equity NI by Financials			12.95		12.47	26.36^{**}
			(1.54)		(1.54)	(2.13)
Equity NI by Nonfinancials			-2.97		-3.16	0.46
			(-1.14)		(-1.40)	(0.13)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.45	0.45	0.47	0.50	0.52	0.24

The Table reports the regression of future 4-quarter cumulative growth rate in GDP, investment and earnings on corporate equity and bond net issuances by financials and nonfinancials. The other controls include change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and changes in time deposits are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table 3: Equity and Bond Return Predictability

Panel (a): Equity Returns

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	-12.75^{***}	-12.46^{***}	-11.08^{***}	-12.52^{***}	-11.67^{***}	
	(-4.08)	(-4.08)	(-3.45)	(-3.54)	(-3.62)	
Bonds NI by Nonfinancials		-1.11	-3.14^{*}		-1.25	-1.99
		(-0.55)	(-1.82)		(-0.89)	(-1.18)
Equity NI by Financials			4.12		7.02^{***}	10.01^{***}
			(1.43)		(3.02)	(2.81)
Equity NI by Nonfinancials			-2.54^{**}		-1.69	-0.91
			(-2.20)		(-1.28)	(-0.59)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.27	0.28	0.38	0.44	0.50	0.37

Panel (b): Investment Grade Bond Returns

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	-3.48^{***}	-3.26^{***}	-3.12^{***}	-2.21^{**}	-1.77^{*}	
	(-4.21)	(-4.05)	(-3.90)	(-2.20)	(-1.92)	
Bonds NI by Nonfinancials		-0.83	-1.02		-0.98	-1.09^{*}
		(-1.24)	(-1.27)		(-1.65)	(-1.84)
Equity NI by Financials			0.40		-0.28	0.17
			(0.31)		(-0.24)	(0.15)
Equity NI by Nonfinancials			-0.23		0.32	0.43
			(-0.62)		(0.92)	(1.21)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.16	0.18	0.19	0.41	0.44	0.42

Panel (c): High-Yield Bond Returns

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	-9.43^{***}	-9.04^{***}	-8.82^{***}	-6.82^{***}	-6.24^{***}	
	(-6.29)	(-6.52)	(-6.99)	(-3.16)	(-3.31)	
Bonds NI by Nonfinancials		-1.45	-2.69^{***}		-1.70^{***}	-2.09^{***}
		(-1.61)	(-2.91)		(-3.35)	(-2.90)
Equity NI by Financials			0.22		0.24	1.83
			(0.13)		(0.18)	(0.89)
Equity NI by Nonfinancials			-1.66^{***}		-0.01	0.41
			(-4.07)		(-0.02)	(0.66)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.35	0.37	0.47	0.65	0.67	0.58

The Table reports the regression of future 4-quarter cumulative excess equity and bond returns on corporate equity and bond net issuances by financials and nonfinancials. The other controls include change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and changes in time deposits are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table 4: Credit Spread Predictability

Panel (a): Change in Baa-Aaa Corporate Bond Yield Spread

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	0.38***	0.38***	0.37***	0.35***	0.34***	
	(4.06)	(4.24)	(4.42)	(3.03)	(3.46)	
Bonds NI by Nonfinancials		0.01	0.04		−0.00	0.02
		(0.20)	(0.78)		(−0.11)	(0.34)
Equity NI by Financials			−0.02		−0.02	−0.11
			(−0.24)		(−0.31)	(−0.94)
Equity NI by Nonfinancials			0.04		−0.02	−0.04
			(1.63)		(−0.77)	(−1.15)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.30	0.30	0.33	0.66	0.66	0.53

Panel (b): Change in GZ Credit Spread

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	0.88***	0.84***	0.83***	0.87***	0.72***	
	(3.99)	(4.29)	(4.39)	(3.04)	(3.39)	
Bonds NI by Nonfinancials		0.16	0.22*		0.21***	0.25**
		(1.60)	(1.82)		(2.84)	(2.57)
Equity NI by Financials			−0.01		−0.01	−0.19
			(−0.07)		(−0.05)	(−0.80)
Equity NI by Nonfinancials			0.08		−0.14**	−0.18**
			(1.23)		(−2.36)	(−2.36)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.31	0.33	0.36	0.57	0.66	0.53

The Table reports the regression of future 4-quarter cumulative change in credit spreads on corporate equity and bond net issuances by financials and nonfinancials. The other controls include change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and changes in time deposits are scaled by GDP. GZ Credit Spread is based on individual bond prices traded in the secondary market (Gilchrist and Zakrajšek, 2012). t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table 5: Uncertainty Predictability

Panel (a): Change in VIX

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	4.51***	4.31***	3.80***	2.99	1.88	
	(3.60)	(3.73)	(2.87)	(1.48)	(1.03)	
Bonds NI by Nonfinancials		0.73	1.10		0.86	0.99
		(1.10)	(1.44)		(1.23)	(1.37)
Equity NI by Financials			−1.70		−1.37	−1.85
			(−1.07)		(−0.84)	(−1.10)
Equity NI by Nonfinancials			0.42		−0.85	−0.98*
			(1.24)		(−1.51)	(−1.66)
Controls	N	N	N	Y	Y	Y
N	119	119	119	119	119	119
R^2	0.14	0.15	0.16	0.31	0.36	0.34

Panel (b): Change in Macroeconomic Uncertainty Index

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	7.92***	7.75***	7.04***	7.97***	6.83***	
	(4.30)	(4.53)	(4.69)	(3.22)	(3.69)	
Bonds NI by Nonfinancials		0.62	1.13		0.71	1.14
		(0.75)	(1.02)		(0.98)	(1.20)
Equity NI by Financials			−2.40		−2.52	−4.26*
			(−1.40)		(−1.45)	(−1.84)
Equity NI by Nonfinancials			0.56		−0.60	−1.06
			(1.06)		(−1.31)	(−1.54)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.37	0.37	0.40	0.58	0.62	0.46

Panel (b): Change in Financial Uncertainty Index

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	9.85***	9.40***	8.60***	6.78	4.46	
	(3.60)	(3.81)	(3.49)	(1.56)	(1.34)	
Bonds NI by Nonfinancials		1.70	1.68		1.85	2.13
		(1.45)	(1.28)		(1.43)	(1.53)
Equity NI by Financials			−3.00		−1.47	−2.62
			(−1.18)		(−0.68)	(−0.98)
Equity NI by Nonfinancials			−0.17		−2.29***	−2.59***
			(−0.25)		(−3.07)	(−2.84)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.26	0.28	0.29	0.44	0.54	0.51

The Table reports the regression of future 4-quarter cumulative change in uncertainty indexes on corporate equity and bond net issuances by financials and nonfinancials. The other controls include change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and changes in time deposits are scaled by GDP. Macroeconomic and Financial Uncertainty Indexes are from Jurado et al. (2015). t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table 6: Monetary Policy Predictability

Panel (a): Change in 3-Month T-Bill Rate

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	-0.73^{***}	-0.75^{**}	-0.67^{**}	-0.80^{***}	-0.81^{***}	
	(-2.63)	(-2.53)	(-2.03)	(-5.01)	(-3.70)	
Bonds NI by Nonfinancials		0.08	-0.01		-0.25^{*}	-0.30^{*}
		(0.37)	(-0.07)		(-1.72)	(-1.69)
Equity NI by Financials			0.28		0.18	0.39
			(0.89)		(0.83)	(1.66)
Equity NI by Nonfinancials			-0.11		-0.20^{**}	-0.15
			(-1.23)		(-2.21)	(-1.38)
Controls	N	N	N	Y	Y	Y
N	120	120	120	120	120	120
R^2	0.16	0.16	0.20	0.53	0.59	0.48

Panel (b): NS Monetary Policy Shock (1995:Q1–2020:Q4)

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	-146.48^{**}	-145.84^{**}	-117.83^{**}	-136.43^{***}	-142.37^{***}	
	(-2.55)	(-2.53)	(-2.12)	(-3.86)	(-3.27)	
Bonds NI by Nonfinancials		-6.25	-10.76		-39.65	-47.37
		(-0.13)	(-0.22)		(-0.99)	(-1.09)
Equity NI by Financials			89.98		112.67^{*}	134.18^{**}
			(1.30)		(1.82)	(2.05)
Equity NI by Nonfinancials			-4.69		-39.57^{**}	-27.27
			(-0.22)		(-2.03)	(-1.25)
Controls	N	N	N	Y	Y	Y
N	100	100	100	100	100	100
R^2	0.12	0.12	0.15	0.41	0.49	0.42

Panel (c): GSS Federal Funds Rate Factor (1991:Q3–2020:Q4)

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	-83.55^{**}	-100.66^{**}	-81.25^{*}	-20.84	-49.71	
	(-2.15)	(-2.22)	(-1.96)	(-0.83)	(-1.35)	
Bonds NI by Nonfinancials		68.31	28.68		12.99	9.37
		(1.43)	(1.02)		(0.39)	(0.28)
Equity NI by Financials			55.87		57.97	70.85^{*}
			(1.42)		(1.49)	(1.85)
Equity NI by Nonfinancials			-49.56^{***}		-60.03^{***}	-56.64^{***}
			(-3.12)		(-4.51)	(-4.18)
Controls	N	N	N	Y	Y	Y
N	114	114	114	114	114	114
R^2	0.06	0.15	0.35	0.36	0.53	0.52

The Table reports the regression of future 4-quarter cumulative change in 3-month T-Bill rate, NS monetary policy shock (Nakamura and Steinsson, 2018), and GSS Federal Funds rate factor (Gürkaynak et al., 2004) on corporate equity and bond net issuances by financials and nonfinancials. The other controls include change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and changes in time deposits are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table 7: Bond Net Issuance by Banks and Other Financials

Panel (a): Business Cycle

	GDP	Investment	Earnings
Bonds NI by Banks & BAME	-2.04^{***}	-9.84^{***}	-80.76^{***}
	(-4.51)	(-3.74)	(-3.80)
Bonds NI by Other Financials	-0.58	-2.18	-23.25
	(-0.97)	(-1.10)	(-1.13)
Controls	Y	Y	Y
N	104	104	104
R^2	0.55	0.63	0.56

Panel (b): Market Cycle

	Equity Ex Return	ΔCredit Spread	ΔFin UI
Bonds NI by Banks & BAME	-17.26^{***}	0.53^{***}	9.10^{*}
	(-3.11)	(3.20)	(1.80)
Bonds NI by Other Financials	-1.99	0.13	-1.25
	(-0.31)	(1.17)	(-0.27)
Controls	Y	Y	Y
N	104	104	104
R^2	0.59	0.70	0.59

Panel (c): Monetary Cycle

	Δ3M TBill	NS MP Shock	GSS FF Rate Factor
Bonds NI by Banks & BAME	-1.18^{***}	-217.99^{**}	-246.06^{***}
	(-3.11)	(-2.58)	(-3.73)
Bonds NI by Other Financials	-0.72^{**}	-72.79	157.22^{***}
	(-2.21)	(-0.98)	(3.04)
Controls	Y	Y	Y
N	104	100	104
R^2	0.63	0.53	0.67

The Table reports the regression of future 4-quarter cumulative growth rate in GDP, investment, and earnings (Panel a), equity excess return, change in credit spread and financial uncertainty index (Panel b), change in 3-Month T-Bill rate, NS monetary policy shock, and GSS Federal Funds rate factor (Panel c) on corporate bond net issuances by $Banks + BAME$ and other financials. The controls include bond net issuances by nonfinancials, equity net issuances by financials and nonfinancials, change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and change in time deposits are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table 8: Bond Net Issuance by Banks and Other Financials
Mergent Data

Panel (a): Business Cycle

	GDP	Investment	Earnings
Bonds NI by Banks & BAME	-0.76^{***}	-4.36^{***}	-19.05^{*}
	(-2.66)	(-3.49)	(-1.77)
Bonds NI by Other Financials	-0.43	1.27	10.68
	(-0.90)	(0.63)	(0.73)
Controls	Y	Y	Y
N	120	120	120
R^2	0.45	0.54	0.30

Panel (b): Market Cycle

	Equity Ex Return	ΔCredit Spread	ΔFin UI
Bonds NI by Banks & BAME	-9.04^{***}	0.17^{*}	1.63
	(-3.00)	(1.88)	(0.73)
Bonds NI by Other Financials	-0.79	0.05	6.43^{**}
	(-0.23)	(1.03)	(2.30)
Controls	Y	Y	Y
N	120	120	120
R^2	0.48	0.61	0.56

Panel (c): Monetary Cycle

	Δ3M TBill	NS MP Shock	GSS FF Rate Factor
Bonds NI by Banks & BAME	-0.15	-131.19^{***}	-68.96^{***}
	(-0.98)	(-3.22)	(-3.56)
Bonds NI by Other Financials	-0.73^{**}	49.00	78.23
	(-2.50)	(1.11)	(1.55)
Controls	Y	Y	Y
N	120	100	114
R^2	0.56	0.53	0.58

The Table reports the regression of future 4-quarter cumulative growth rate in GDP, investment, and earnings (Panel a), equity excess return, change in credit spread and financial uncertainty index (Panel b), change in 3-Month T-Bill rate, NS monetary policy shock, and GSS Federal Funds rate factor (Panel c) on corporate bond net issuances by $Banks + BAME$ and other financials. The controls include bond net issuances by nonfinancials, equity net issuances by financials and nonfinancials, change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Bond net issuances are measured using the Mergent data at the individual firm level. Net issuances and change in time deposits are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table 9: Bond Net Issuance by GSIBs and Non-GSIBs Mergent Data

Panel (a): Business Cycle

	GDP	Investment	Earnings
Bonds NI by GSIBs	-2.78^{***}	-15.66^{***}	-98.36^{**}
	(-3.18)	(-3.28)	(-2.03)
Bonds NI by Non-GSIBs	-0.42	-1.65	0.35
	(-1.24)	(-1.10)	(0.03)
Controls	Y	Y	Y
N	120	120	120
R^2	0.47	0.58	0.35

Panel (b): Market Cycle

	Equity Ex Return	ΔCredit Spread	ΔFin UI
Bonds NI by GSIBs	-32.63^{***}	0.68^{***}	13.79
	(-3.88)	(2.80)	(1.65)
Bonds NI by Non-GSIBs	-4.14	0.08	0.43
	(-1.44)	(0.80)	(0.14)
Controls	Y	Y	Y
N	120	120	120
R^2	0.52	0.63	0.55

Panel (c): Monetary Cycle

	Δ3M TBill	NS MP Shock	GSS FF Rate Factor
Bonds NI by GSIBs	-1.02	-470.63^{***}	-51.53
	(-1.34)	(-3.36)	(-0.60)
Bonds NI by Non-GSIBs	-0.12	-55.53	-55.79^{**}
	(-0.53)	(-1.22)	(-2.24)
Controls	Y	Y	Y
N	120	100	114
R^2	0.53	0.55	0.57

The Table reports the regression of future 4-quarter cumulative growth rate in GDP, investment, and earnings (Panel a), equity excess return, change in credit spread and financial uncertainty index (Panel b), change in 3-Month T-Bill rate, NS monetary policy shock, and GSS Federal Funds rate factor (Panel c) on corporate bond net issuances by GSIBs and other $Banks + BAME$. The controls include bond net issuances by nonfinancials, equity net issuances by financials and nonfinancials, change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Bond net issuances are measured using the Mergent data at the individual firm level. Net issuances and change in time deposits are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table 10: Bond Net Issuance by GSIBs and FCOs
Mergent Data

Panel (a): Business Cycle

	GDP	Investment	Earnings
Bonds NI by GSIBs	-3.61^{***}	-18.89^{***}	-98.35^{**}
	(-4.32)	(-4.91)	(-2.34)
Bonds NI by FCOs	2.37^{**}	8.60^{*}	5.67
	(2.25)	(1.69)	(0.14)
Controls	Y	Y	Y
N	120	120	120
R^2	0.48	0.59	0.35

Panel (b): Market Cycle

	Equity Ex Return	ΔCredit Spread	ΔFin UI
Bonds NI by GSIBs	-39.64^{***}	0.83^{***}	13.39
	(-4.41)	(3.27)	(1.55)
Bonds NI by FCOs	9.24	-0.42	11.66
	(0.87)	(-1.45)	(1.05)
Controls	Y	Y	Y
N	120	120	120
R^2	0.51	0.63	0.56

Panel (c): Monetary Cycle

	Δ3M TBill	NS MP Shock	GSS FF Rate Factor
Bonds NI by GSIBs	-1.38^{**}	-625.53^{***}	-153.09^{*}
	(-2.06)	(-4.46)	(-1.83)
Bonds NI by FCOs	2.11^{*}	413.14	180.27
	(1.97)	(1.62)	(1.11)
Controls	Y	Y	Y
N	120	100	114
R^2	0.56	0.57	0.56

The Table reports the regression of future 4-quarter cumulative growth rate in GDP, investment, and earnings (Panel a), equity excess return, change in credit spread and financial uncertainty index (Panel b), change in 3-Month T-Bill rate, NS monetary policy shock, and GSS Federal Funds rate factor (Panel c) on corporate bond net issuances by GSIBs and FCOs. The controls include bond net issuances by nonfinancials, equity net issuances by financials and nonfinancials, change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Bond net issuances are measured using the Mergent data at the individual firm level. Net issuances and change in time deposits are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table 11: Bond and Preferred Stock Net Issuance by Banks & BAME

Panel (b): Business Cycle

	GDP		Investment		Earnings	
Bonds NI by Banks+BAME	-0.68^{**}		-2.84^{**}		-10.91	
	(-2.35)		(-2.38)		(-1.07)	
Preferred Stock NI by Banks+BAME		-6.54^{***}		-49.89^{***}		-354.97^{***}
		(-2.97)		(-5.23)		(-3.95)
Controls	Y	Y	Y	Y	Y	Y
N	84	84	84	84	84	84
R^2	0.48	0.49	0.61	0.73	0.34	0.50

Panel (c): Market Cycle

	Equity Ex Return		ΔCredit Spread		ΔFin UI	
Bonds NI by Banks+BAME	-6.04^{**}		0.17^{**}		2.54	
	(-2.41)		(2.03)		(0.98)	
Preferred Stock NI by Banks+BAME		-38.44^{**}		0.40^{*}		0.44
		(-2.47)		(0.72)		(0.02)
Controls	N	N	N	N	N	N
N	84	84	84	84	84	84
R^2	0.62	0.59	0.63	0.59	0.58	0.56

Panel (d): Monetary Cycle

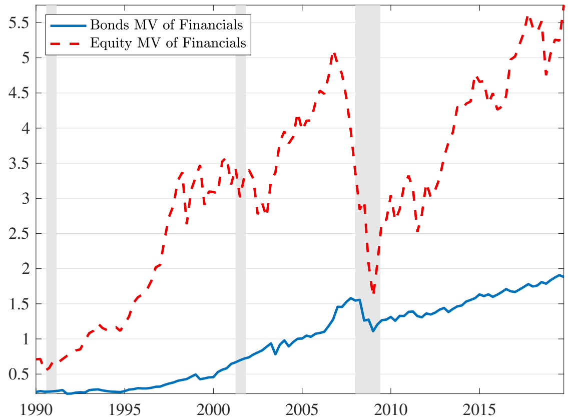
	Δ3M TBill		NS MP Shock		GSS FF Rate Factor	
Bonds NI by Banks+BAME	-0.33^{*}		-123.08^{***}		-57.94^{***}	
	(-1.80)		(-2.83)		(-2.80)	
Preferred Stock NI by Banks+BAME		-0.62^{*}		76.96^{*}		-447.88^{**}
		(-0.38)		(0.20)		(-2.18)
Controls	Y	Y	Y	Y	Y	Y
N	84	84	84	84	84	84
R^2	0.50	0.47	0.53	0.46	0.61	0.60

The Table reports the regression of future 4-quarter cumulative growth rate in bank asset growth, C&I and consumer loans (Panel a), growth rate in GDP, investment, and earnings (Panel b), equity excess return, change in credit spread and financial uncertainty index (Panel c), change in 3-Month T-Bill rate, NS monetary policy shock, and GSS Federal Funds rate factor (Panel d) on corporate bond and preferred stock net issuances by $Banks + BAME$. The controls include bond net issuance by nonfinancials, equity net issuance by financials and nonfinancials, change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and change in deposits are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

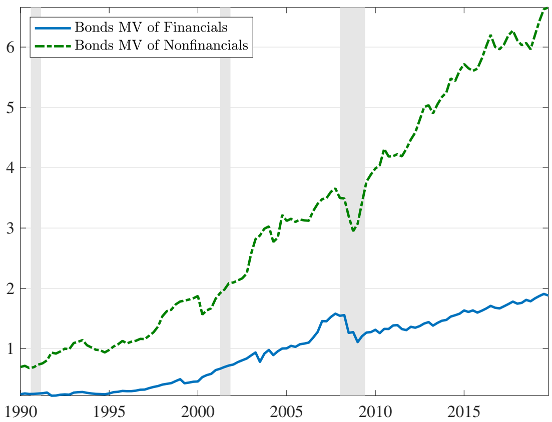
Table 12: Lending Standards Predictability

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	50.37***	49.92**	44.87**	42.16***	40.70***	
	(2.67)	(2.58)	(2.24)	(3.35)	(3.47)	
Bonds NI by Nonfinancials		1.68	8.62		15.41**	18.20**
		(0.14)	(0.78)		(2.44)	(2.42)
Equity NI by Financials			−15.47		−19.94**	−30.34**
			(−1.04)		(−2.09)	(−2.30)
Equity NI by Nonfinancials			8.58		12.30***	9.55**
			(1.07)		(3.45)	(2.05)
Controls	N	N	N	Y	Y	Y
N	119	119	119	119	119	119
R^2	0.18	0.18	0.23	0.68	0.74	0.68

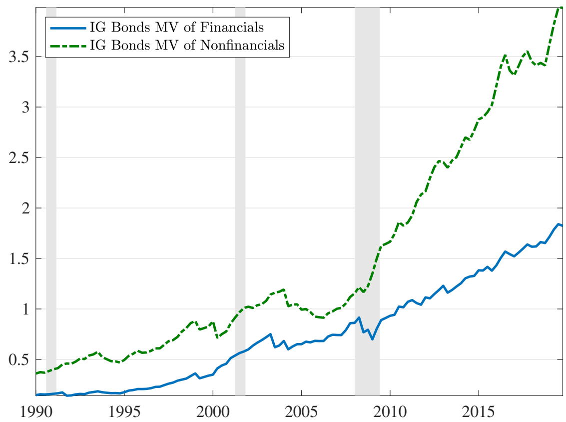
The Table reports the regression of future 4-quarter cumulative change in percentage of domestic banks tightening lending standards to large and middle-market firms on corporate equity and bond net issuances by financials and nonfinancials. The other controls include change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and changes in time deposits are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.



Panel (a): Equity MV by Financials



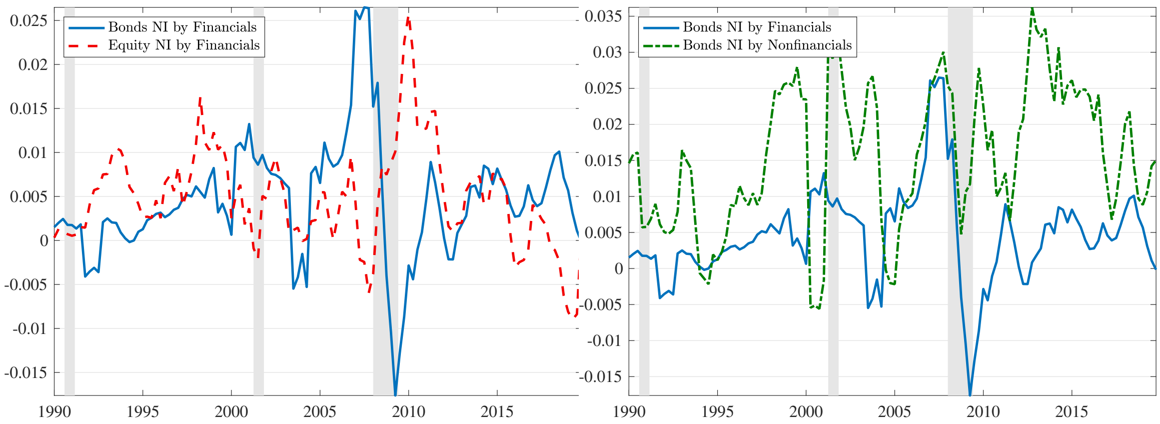
Panel (b): Bond MV by Nonfinancials



Panel (c): IG Bond MV by Nonfinancialss

Fig. 1: Corporate Equity and Bond Market Value

The Figure depicts corporate bond market value by financials versus equity market value by financials in Panel (a), versus corporate bond market value by nonfinancials in Panel (b), versus investment-grade corporate bond market value by nonfinancials in Panel (c). Market values are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.



Panel (a): Equity NI by Financials **Panel (b): Bond NI by nonfinancials**

Fig. 2: Corporate Equity and Bond Net Issuance

The Figure depicts corporate bond net issuances by financials versus equity net issuances by financials in Panel (a), versus corporate bond net issuances by nonfinancials in Panel (b). Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

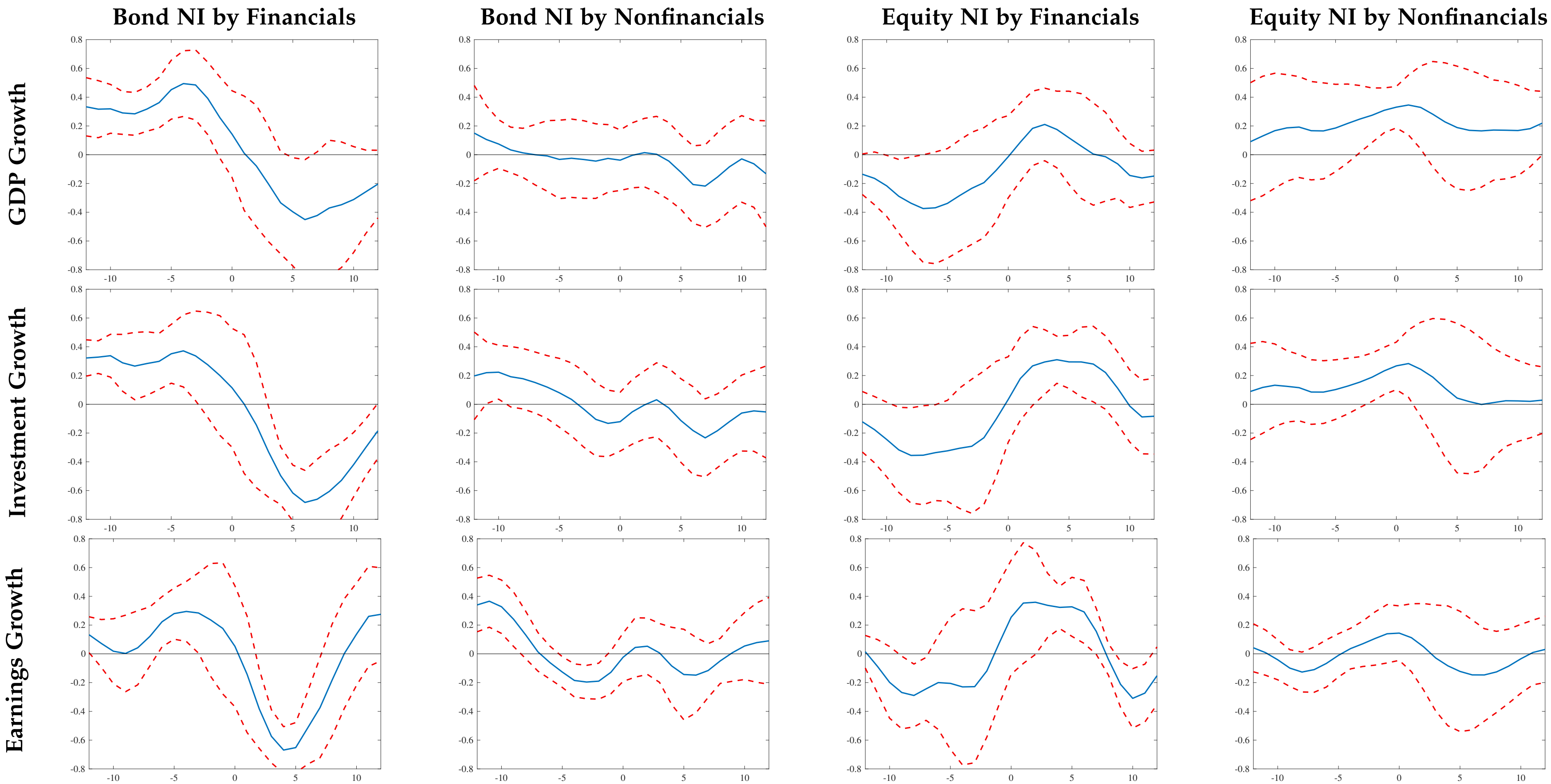


Fig. 3: Lead-Lag Correlations: Business Cycle

The Figure depicts the lead and lag correlations between net issuances and GDP growth (top panel), investment growth (middle panel), and earnings growth (bottom panel). Net issuances measures include equity and bond net issuances by financials and nonfinancials. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

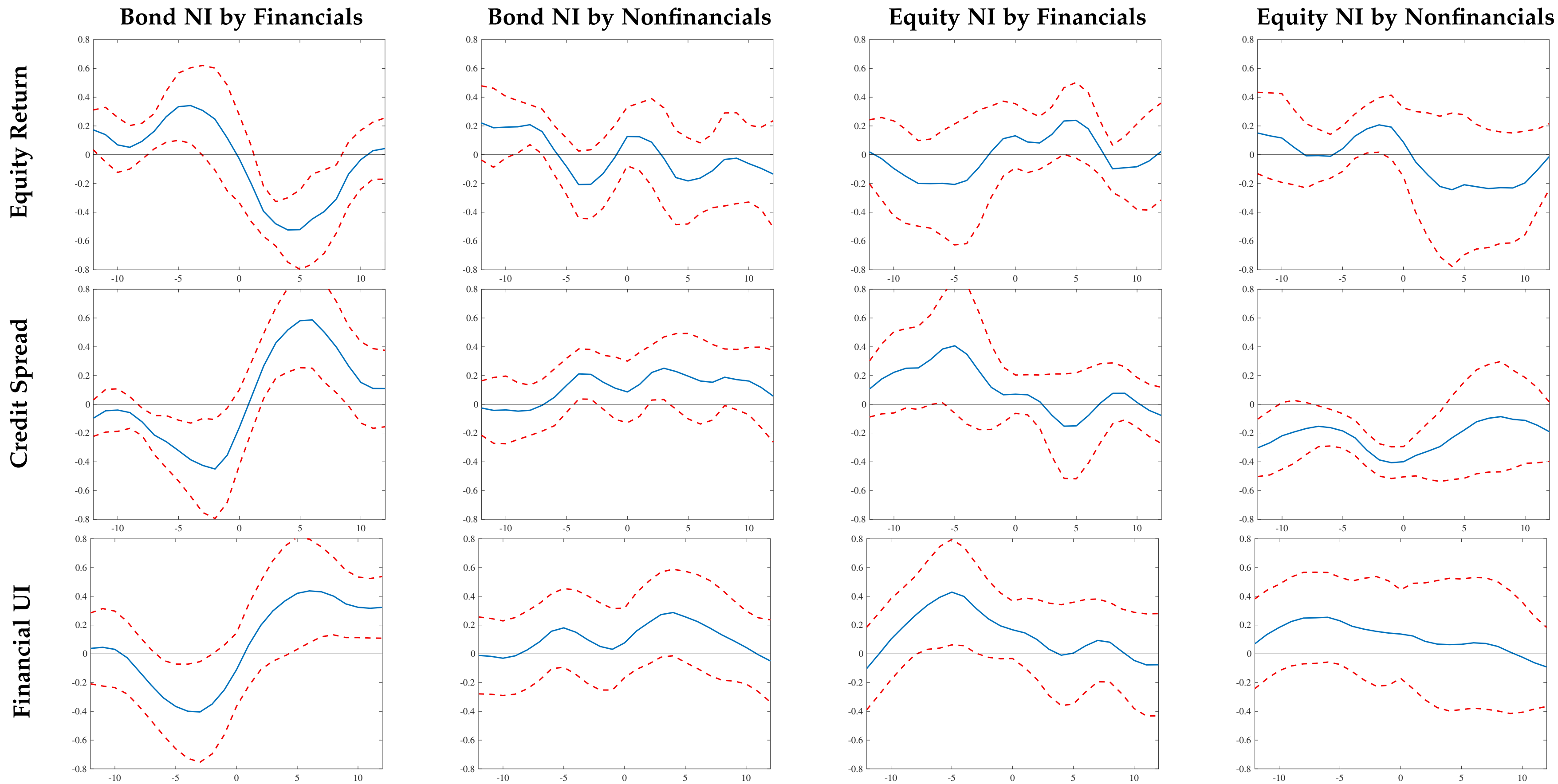


Fig. 4: Lead-Lag Correlations: Market Cycle

The Figure depicts the lead and lag correlations between net issuances and equity excess return (top panel), change in credit spread (middle panel), and financial uncertainty index (bottom panel). Net issuances measures include equity and bond net issuances by financials and nonfinancials. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

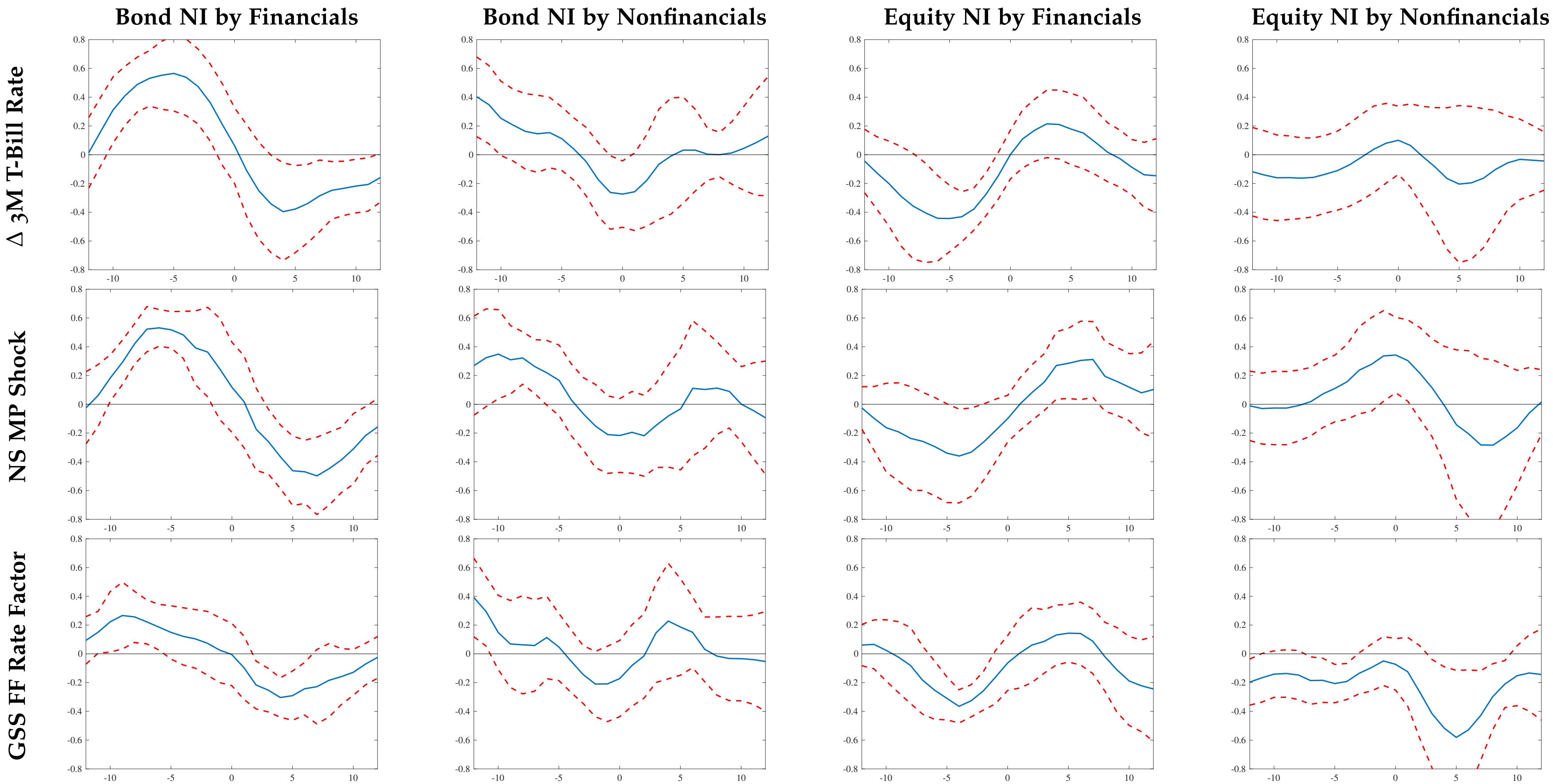


Fig. 5: Lead-Lag Correlations: Monetary Cycle

The Figure depicts the lead and lag correlations between net issuances and change in 3-month T-Bill rate (top panel), NS monetary policy shock (middle panel), and GSS Federal Funds rate factor (bottom figure). Net issuances measures include equity and bond net issuances by financials and nonfinancials. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

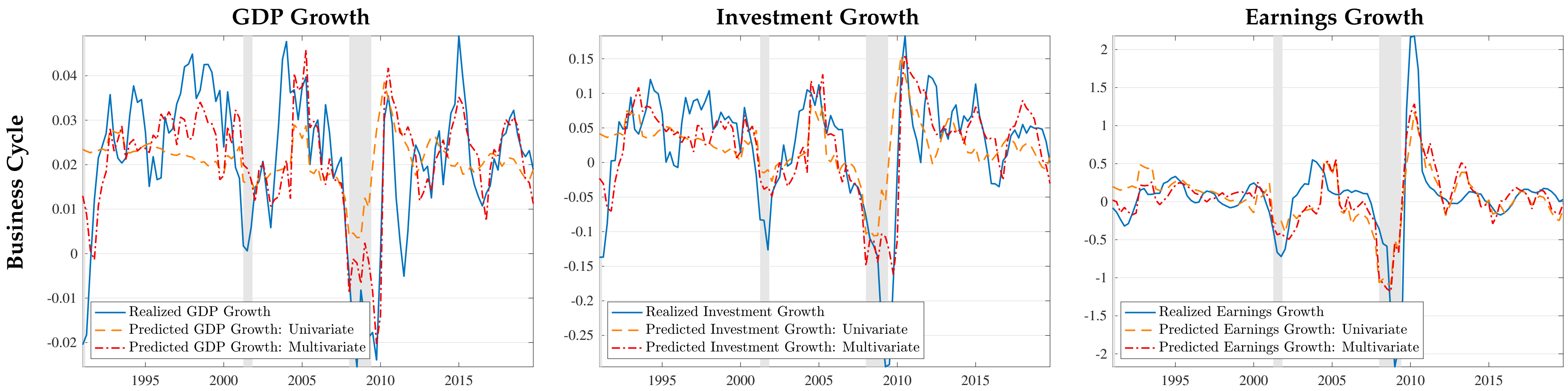


Fig. 6: Business Cycle: Realized vs Predicted

The Figure depicts realized and predicted growth rates in output, investment and earnings. The prediction is based on the regression of future 4-quarter cumulative growth rates on bond net issuances by financials without controls (univariate) and with control (multivariate). The controls include bond net issuance by nonfinancials, equity net issuance by financials and nonfinancials, change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and change in deposits are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

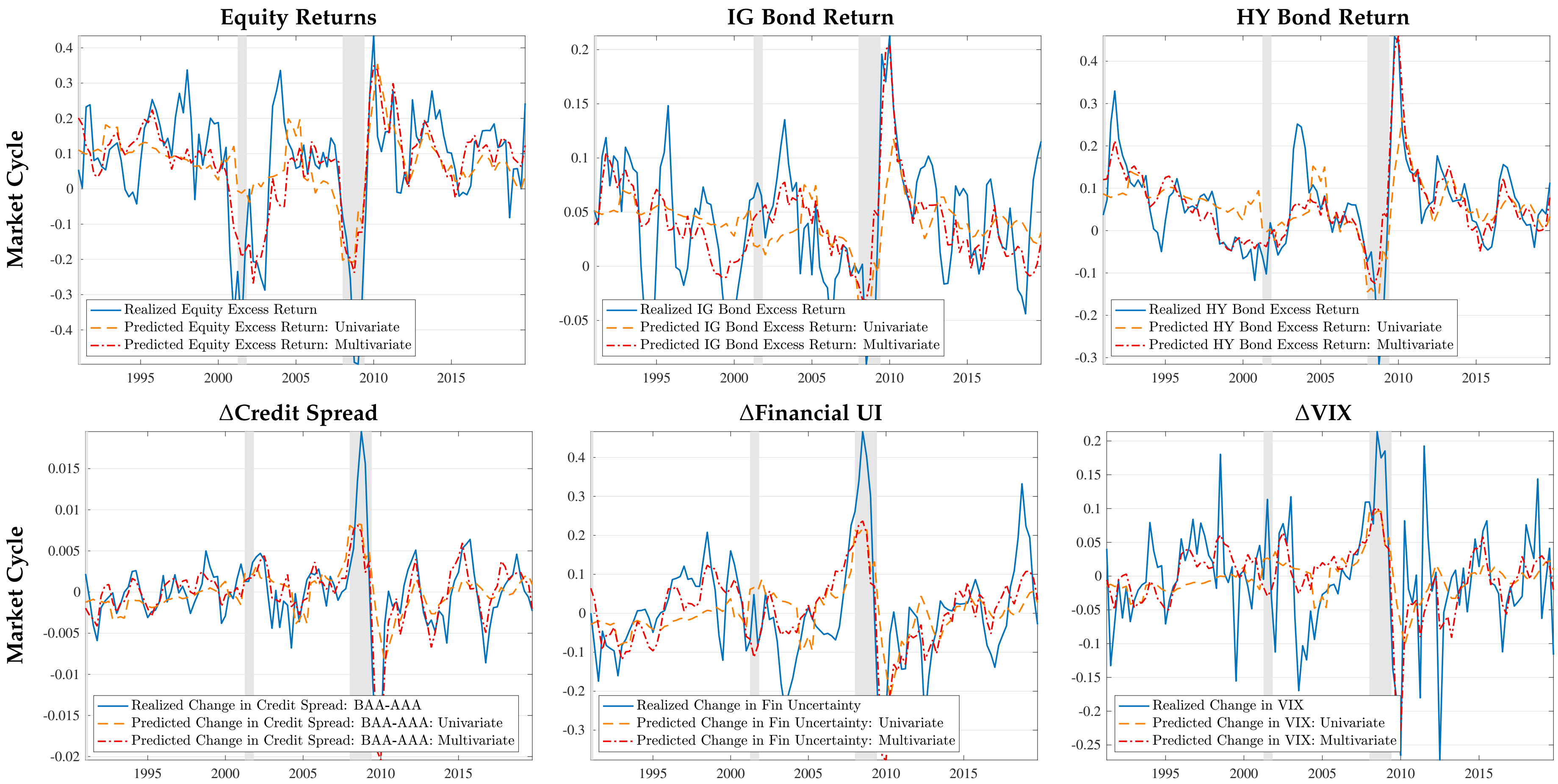


Fig. 7: Market Cycle: Realized vs Predicted

The Figure depicts realized and predicted equity excess returns, IG and HY bond excess returns (top panel) and changes in credit spread, financial uncertainty index, and VIX (bottom panel). The prediction is based on the regression of future 4-quarter cumulative variables on bond net issuances by financials without controls (univariate) and with control (multivariate). The controls include bond net issuance by nonfinancials, equity net issuance by financials and nonfinancials, change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and change in deposits are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

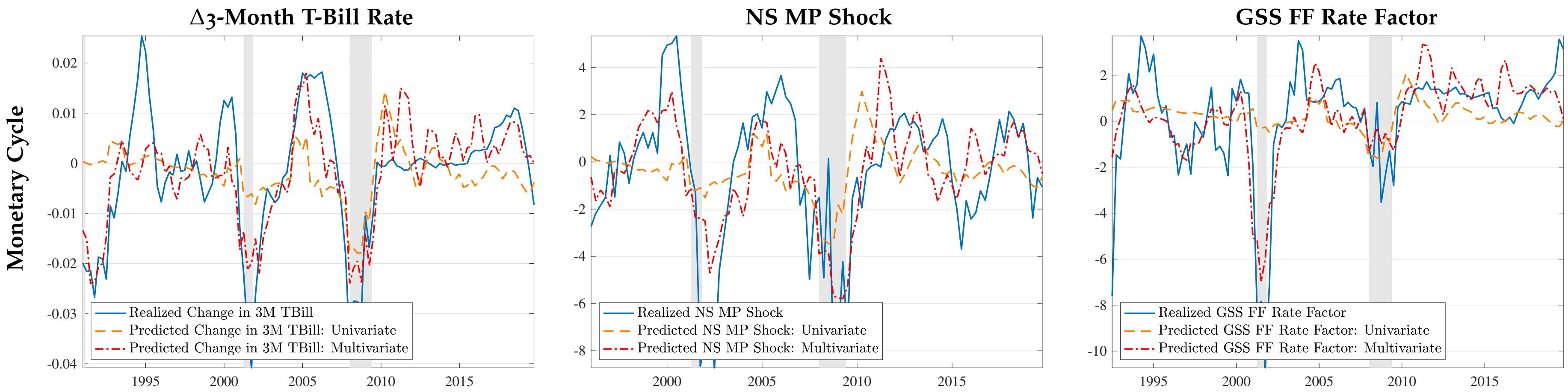


Fig. 8: Monetary Cycle: Realized vs Predicted

The Figure depicts realized and predicted changes in 3-Month T-Bill rate, NS monerary policy shock, and GSS Federal Funds rate factor. The prediction is based on the regression of future 4-quarter cumulative variables on bond net issuances by financials without controls (univariate) and with control (multivariate). The controls include bond net issuance by nonfinancials, equity net issuance by financials and nonfinancials, change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and change in deposits are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

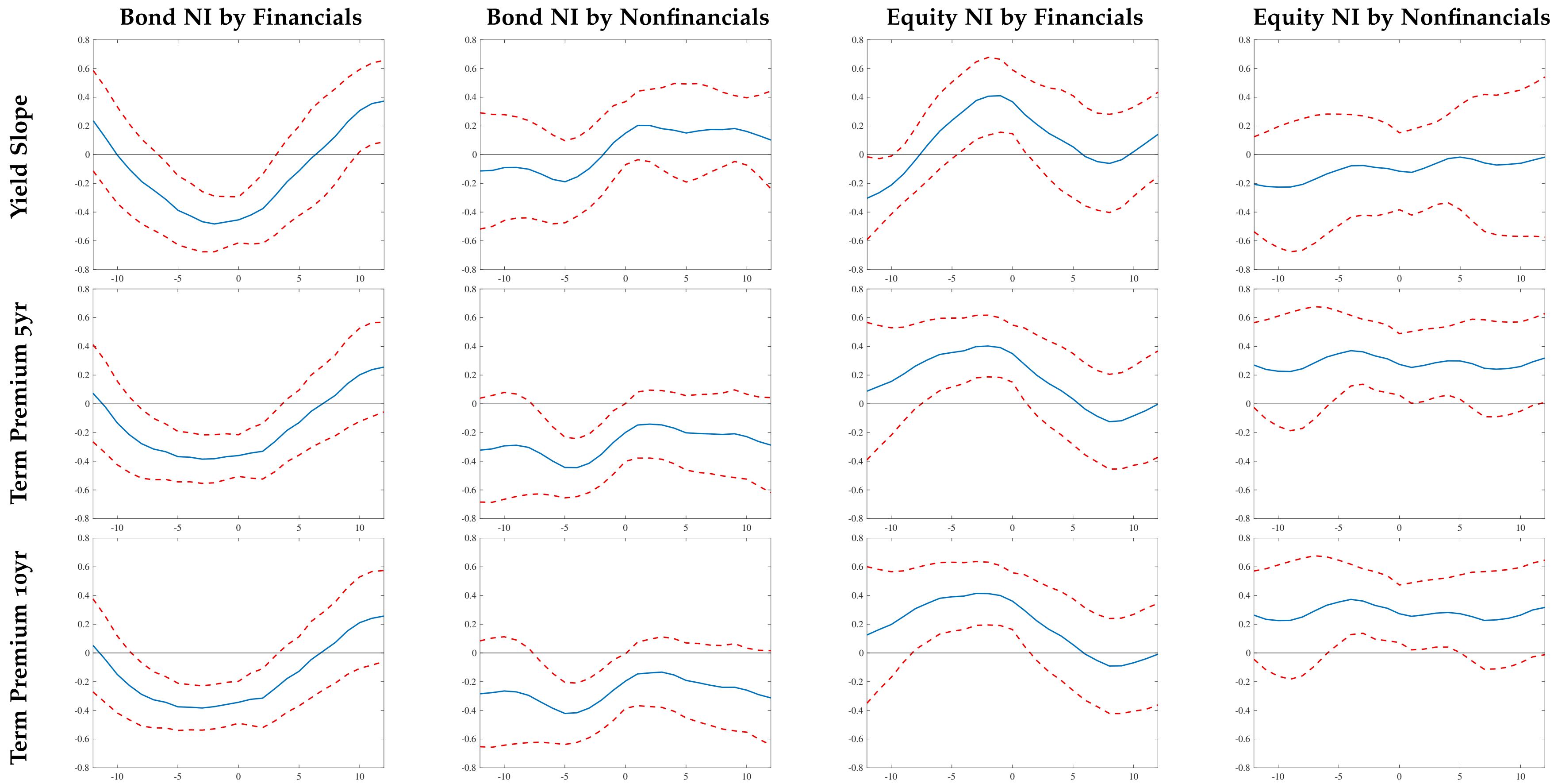
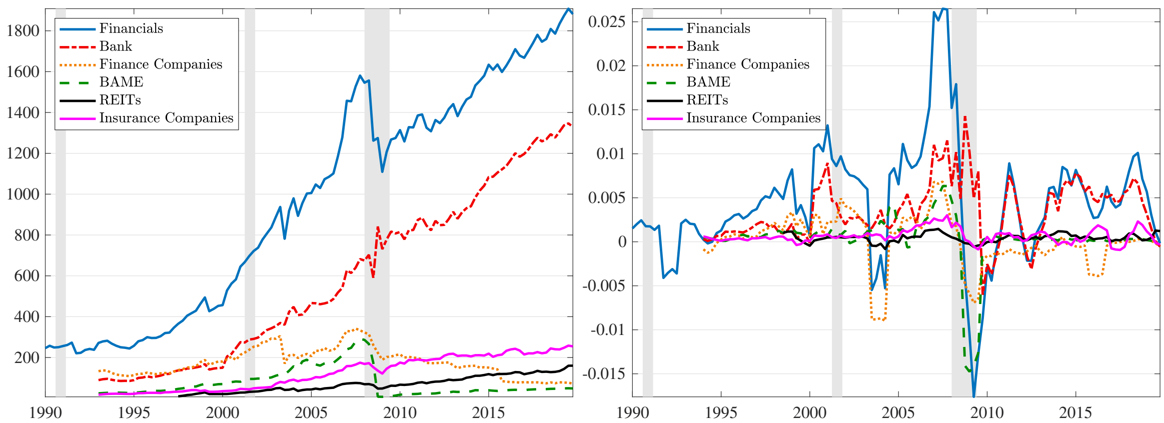


Fig. 9: Lead-Lag Correlations: Yield Curve and Term Premium

The Figure depicts the lead and lag correlations between net issuances and slope of the yield curve (top panel), ACM 5-year term premium (middle panel), and ACM 10-year term premium (bottom figure). Net issuances measures include equity and bond net issuances by financials and nonfinancials. Net issuances are scaled by GDP. Term premium data are from Adrian et al. (2013). Quarterly data are adjusted for inflation over the sample 1990–2019.



Panel (a): Bond Market Value **Panel (b): Bond Net Issuance**

Fig. 10: Composition of Financial Sector

The Figure depicts the market value and net issuances of corporate bonds by financials; banks; finance companies (FCOs); brokers, asset managers, and exchanges (BAME); real estate investment trusts (REITs); and insurance companies. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

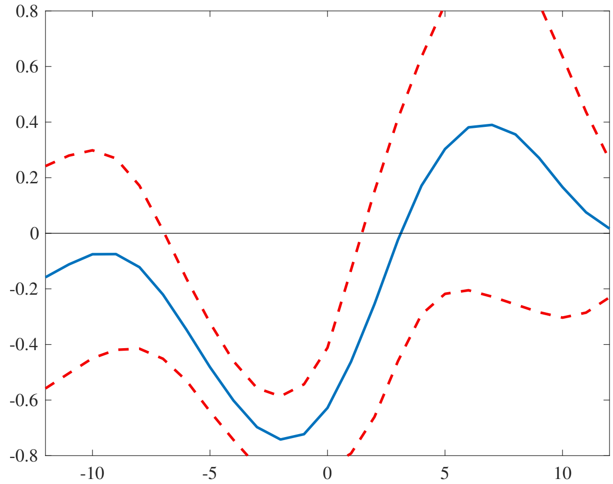


Fig. 11: Lead-Lag Correlations: Option-Adjusted Spreads of Bonds

The Figure depicts the lead and lag correlations between bond net issuances by $Banks + BAME$ and option-adjusted spread of investment grade bonds by $Banks$. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 2003–2019.

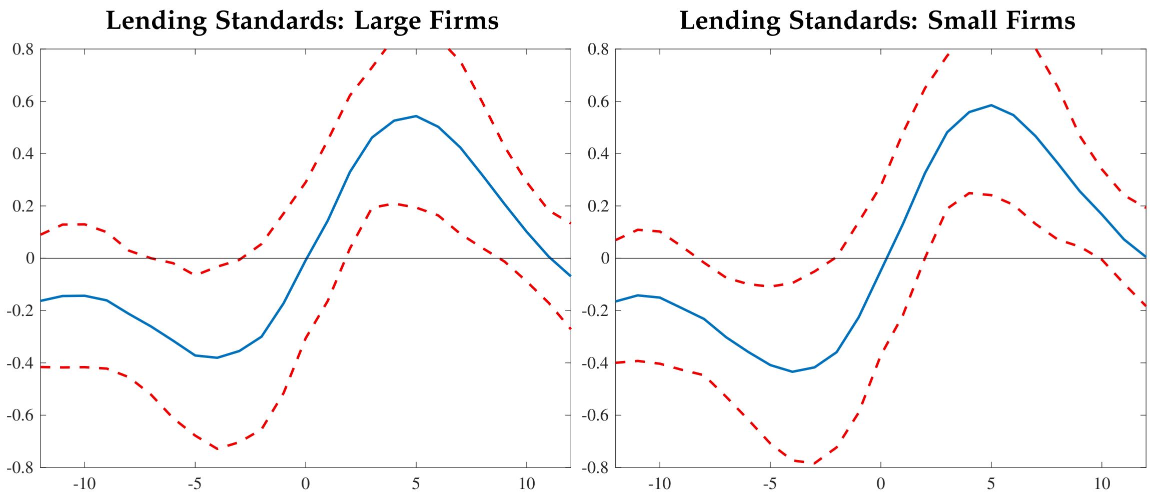


Fig. 12: Lead-Lag Correlations: Lending Standards

The Figure depicts the lead and lag correlations between bond net issuances by $Bank + BAME$ and lending standards for large firms and small firms. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

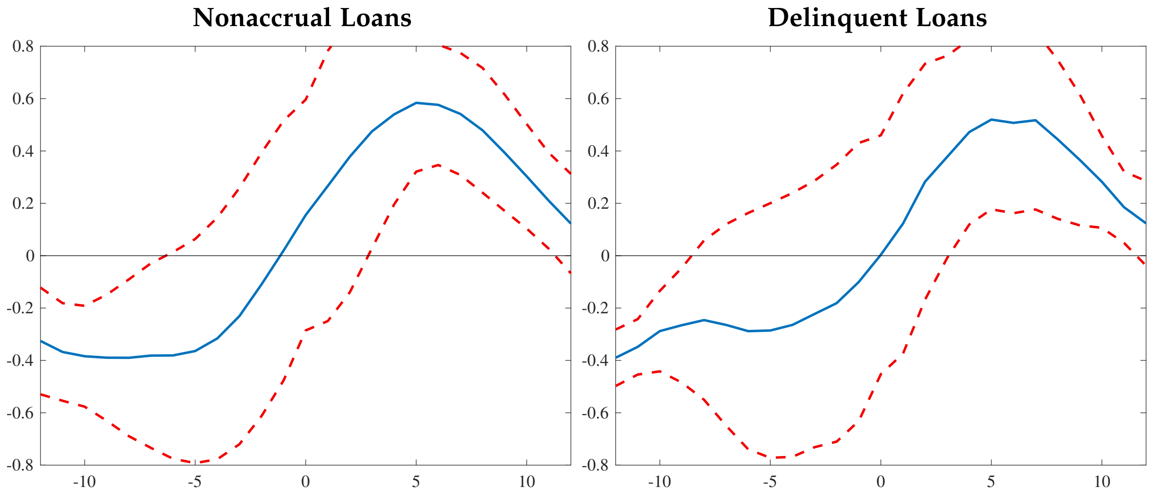


Fig. 13: Lead-Lag Correlations: Nonaccrual and Nonperforming Loans

The Figure depicts the lead and lag correlations between bond net issuances by $Bank + BAME$ and growth rates in nonaccrual and nonperforming loans. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

Appendix

A Additional Tables and Figures

Table A.1: Equity Return Predictability

	(1)	(2)	(3)	(4)	(5)	(6)
Bonds NI by Financials	-12.75^{***}	-12.46^{***}	-11.08^{***}	-12.52^{**}	-11.67^{**}	
	(-3.13)	(-2.99)	(-2.86)	(-2.60)	(-2.42)	
Bonds NI by Nonfinancials		-1.11	-3.14		-1.25	-1.99
		(-0.44)	(-1.26)		(-0.45)	(-0.74)
Equity NI by Financials			4.12		7.02	10.01^{*}
			(0.78)		(1.26)	(1.71)
Equity NI by Nonfinancials			-2.54		-1.69	-0.91
			(0.36)		(0.45)	(0.32)
Controls	N	N	N	Y	Y	Y
Bootstrapped p-value	0.002	0.001	0.005	0.008	0.018	
N	120	120	120	120	120	120
R^2	0.27	0.27	0.36	0.40	0.45	0.32

The Table reports the regression of future 4-quarter cumulative excess equity on corporate equity and bond net issuances by financials and nonfinancials. The other controls include change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and changes in time deposits are scaled by GDP. t-statistics based on the standard errors computed using the reverse regression approach of Hodrick (1992) are reported in the parentheses. The p-values using the bootstrap approach are reported for the bond net issuances by financials. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table A.2: Bond Net Issuance by Banks & BAME vs by Financials

Panel (b): Business Cycle

	GDP		Investment		Earnings	
Bonds NI by Banks+BAME	-1.43^{**}		-10.03^{***}		-92.48^{***}	
	(-2.22)		(-4.33)		(-4.22)	
Bonds NI by Financials		-0.86^{**}		-6.21^{***}		-55.35^{***}
		(-2.21)		(-4.64)		(-4.05)
Controls	N	N	N	N	N	N
N	104	104	104	104	104	104
R^2	0.14	0.15	0.27	0.29	0.49	0.49

Panel (c): Market Cycle

	Equity Ex Return		ΔCredit Spread		ΔFin UI	
Bonds NI by Banks+BAME	-23.24^{***}		0.72^{***}		16.11^{***}	
	(-4.52)		(4.06)		(3.36)	
Bonds NI by Financials		-13.65^{***}		0.43^{***}		10.04^{***}
		(-4.20)		(3.89)		(3.61)
Controls	N	N	N	N	N	N
N	104	104	104	104	104	104
R^2	0.31	0.30	0.34	0.35	0.24	0.26

Panel (d): Monetary Cycle

	Δ3M TBill		NS MP Shock		GSS FF Rate Factor	
Bonds NI by Banks+BAME	-1.19^{**}		-246.92^{**}		-152.48^{**}	
	(-2.61)		(-2.61)		(-2.39)	
Bonds NI by Financials		-0.87^{***}		-146.53^{**}		-90.82^{**}
		(-3.23)		(-2.55)		(-2.58)
Controls	N	N	N	N	N	N
N	104	104	100	100	104	104
R^2	0.18	0.27	0.13	0.12	0.08	0.08

The Table reports the regression of future 4-quarter cumulative growth rate in bank asset growth, C&I and consumer loans (Panel a), growth rate in GDP, investment, and earnings (Panel b), equity excess return, change in credit spread and financial uncertainty index (Panel c), change in 3-Month T-Bill rate, NS monetary policy shock, and GSS Federal Funds rate factor (Panel d) on corporate bond net issuances by Banks+BAME and by all financials. The controls include bond net issuance by nonfinancials, equity net issuance by financials and nonfinancials, change in time deposits, market price-dividend ratio, 3-month T-Bill rate, credit spread, slope of the yield curve, and GDP growth. Net issuances and change in deposits are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table A.3: Bond Issuance and Repurchase by Financials

Panel (a): Business Cycle

	GDP	Investment	Earnings
Bond Issuance by Financials	-0.14	-1.19^{*}	-9.28^{***}
	(-0.81)	(-1.83)	(-2.68)
Bond Repurchase by Financials	0.07	1.12	11.46^{**}
	(0.32)	(1.26)	(2.19)
Controls	N	N	N
N	120	120	120
R^2	0.03	0.05	0.08

Panel (b): Market Cycle

	Equity Ex Return	ΔCredit Spread	ΔFin UI
Bond Issuance by Financials	-4.89^{***}	0.11^{***}	3.40^{***}
	(-3.62)	(2.96)	(2.64)
Bond Repurchase by Financials	4.72^{***}	-0.12^{**}	-3.81^{***}
	(2.86)	(-2.59)	(-2.72)
Controls	N	N	N
N	120	120	120
R^2	0.22	0.13	0.16

Panel (c): Monetary Cycle

	Δ3M TBill	NS MP Shock	GSS FF Rate Factor
Bond Issuance by Financials	-0.26^{*}	-47.66	-51.09^{**}
	(-1.79)	(-1.51)	(-2.34)
Bond Repurchase by Financials	0.39^{**}	39.38	79.02^{***}
	(2.43)	(1.07)	(3.06)
Controls	N	N	N
N	120	100	114
R^2	0.15	0.06	0.19

The Table reports the regression of future 4-quarter cumulative growth rate in GDP, investment, and earnings (Panel a), equity excess return, change in credit spread and financial uncertainty index (Panel b), change in 3-Month T-Bill rate, NS monetary policy shock, and GSS Federal Funds rate factor (Panel c) on corporate bond issuance and repurchase by financials. Issuance and repurchase are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

Table A.4: Equity Return Predictability: Common Predictors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bonds NI by Financials	-12.75^{***}							-8.98^{***}	-10.17^{***}
	(-4.08)							(-3.39)	(-3.38)
Market Log Price-Dividend Ratio		-0.25^{***}						0.08	-0.00
		(-2.92)						(0.89)	(-0.06)
Net Payout Yield			0.25^{***}					0.27^{***}	0.14
			(2.85)					(2.74)	(1.50)
Variance Risk Premium				0.20^{***}				0.17^{**}	0.22^{**}
				(2.64)				(2.14)	(2.51)
SBD Leverage					-0.01^{*}			-0.00	0.00
					(-1.89)			(-0.25)	(1.04)
Log Gold-Platinum Ratio						0.21^{**}		0.12	0.17^{**}
						(2.50)		(1.53)	(2.12)
Consumption-Wealth Ratio							0.68	2.73^{**}	
							(0.65)	(2.26)	
N	120	120	120	120	120	120	119	119	120
R^2	0.27	0.16	0.13	0.04	0.10	0.17	0.00	0.45	0.42

The Table reports the regression of future 4-quarter cumulative excess market returns on corporate bond net issuances by financials, market log price-dividend ratio, net payout yield from Boudoukh et al. (2007), variance risk-premium from Zhou (2018), security broker-dealers leverage ratio from Adrian et al. (2014), log gold-platinum ratio from Huang and Kilic (2019) and log consumption-wealth ratio from Lettau and Ludvigson (2001). Net issuances are scaled by GDP. t-statistics based on the Newey-West standard errors are reported in the parentheses. Quarterly data are adjusted for inflation over the sample 1990–2019.

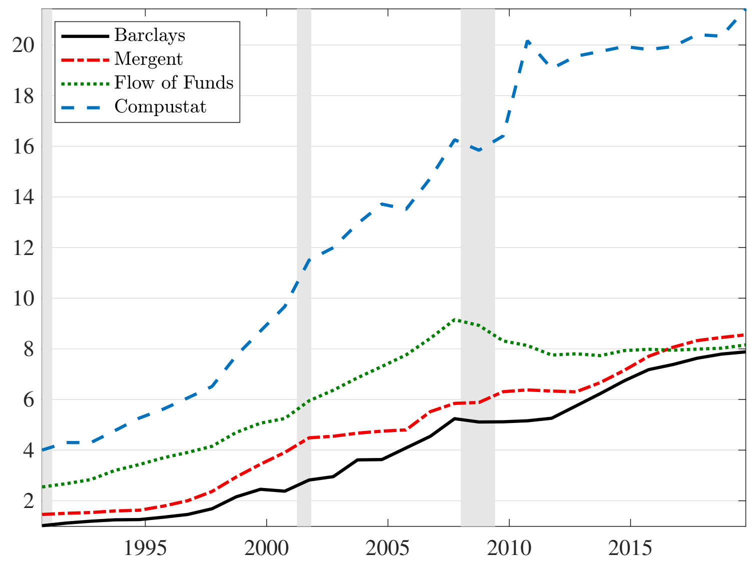


Fig. A.1: Bond Data Coverage

The Figure depicts aggregate book value of corporate bonds from Bloomberg Barclays, Flow of Funds, Mergent, and Compustat (long-term debt) databases. Annual data adjusted for inflation over the 1990–2019 sample.

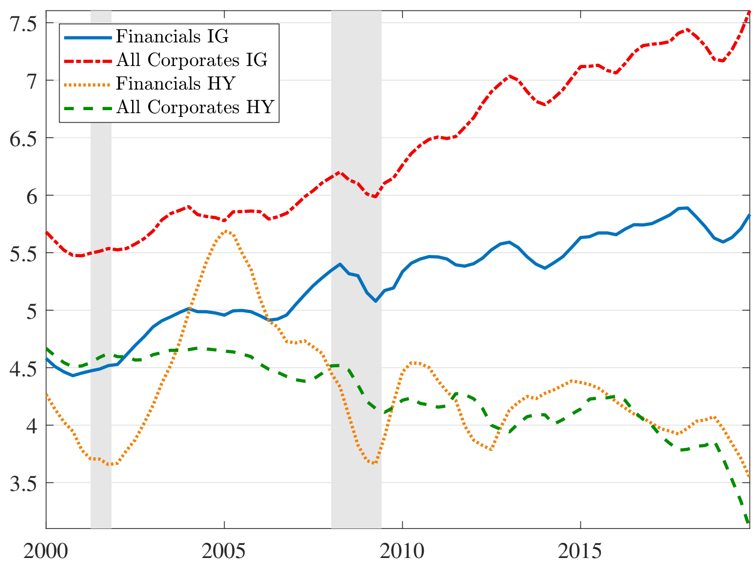


Fig. A.2: Option-Adjusted Duration of Bonds by Financials

The Figure depicts option-adjusted duration of investment grade and high yield bonds by all corporates and financials. Quarterly data are over the sample 2000–2019.

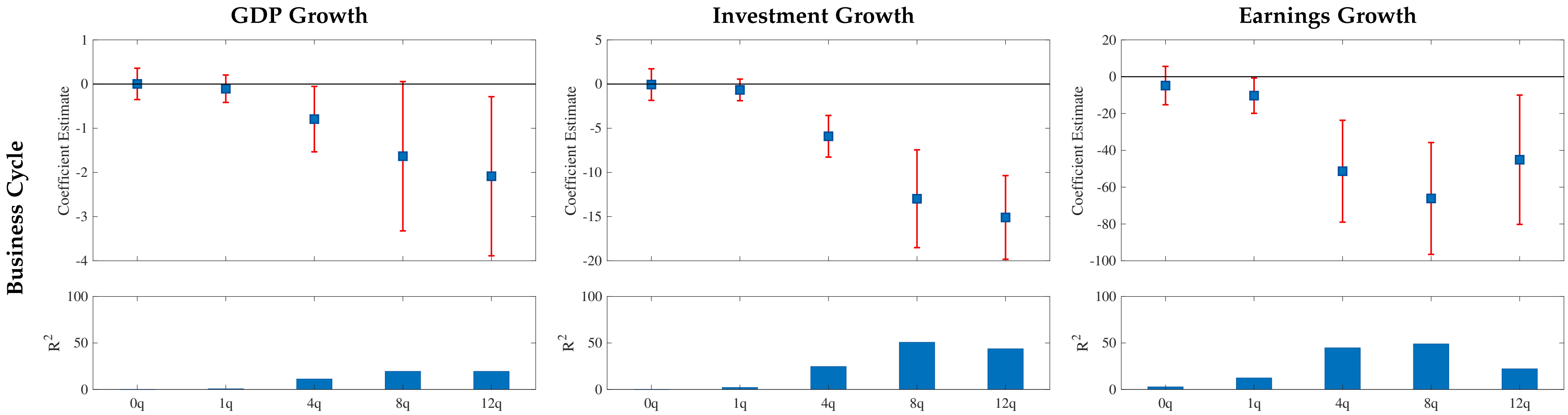


Fig. A.3: Business Cycle: Different Horizons

The Figure depicts the coefficient estimates, 95%-confidence interval based on the Newey-West standard errors, and R^2 from the regression of future 1-, 4-, 8- and 12-quarter cumulative cumulative growth rate in growth rate in output, investment and earnings. on corporate bond net issuance by financials. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

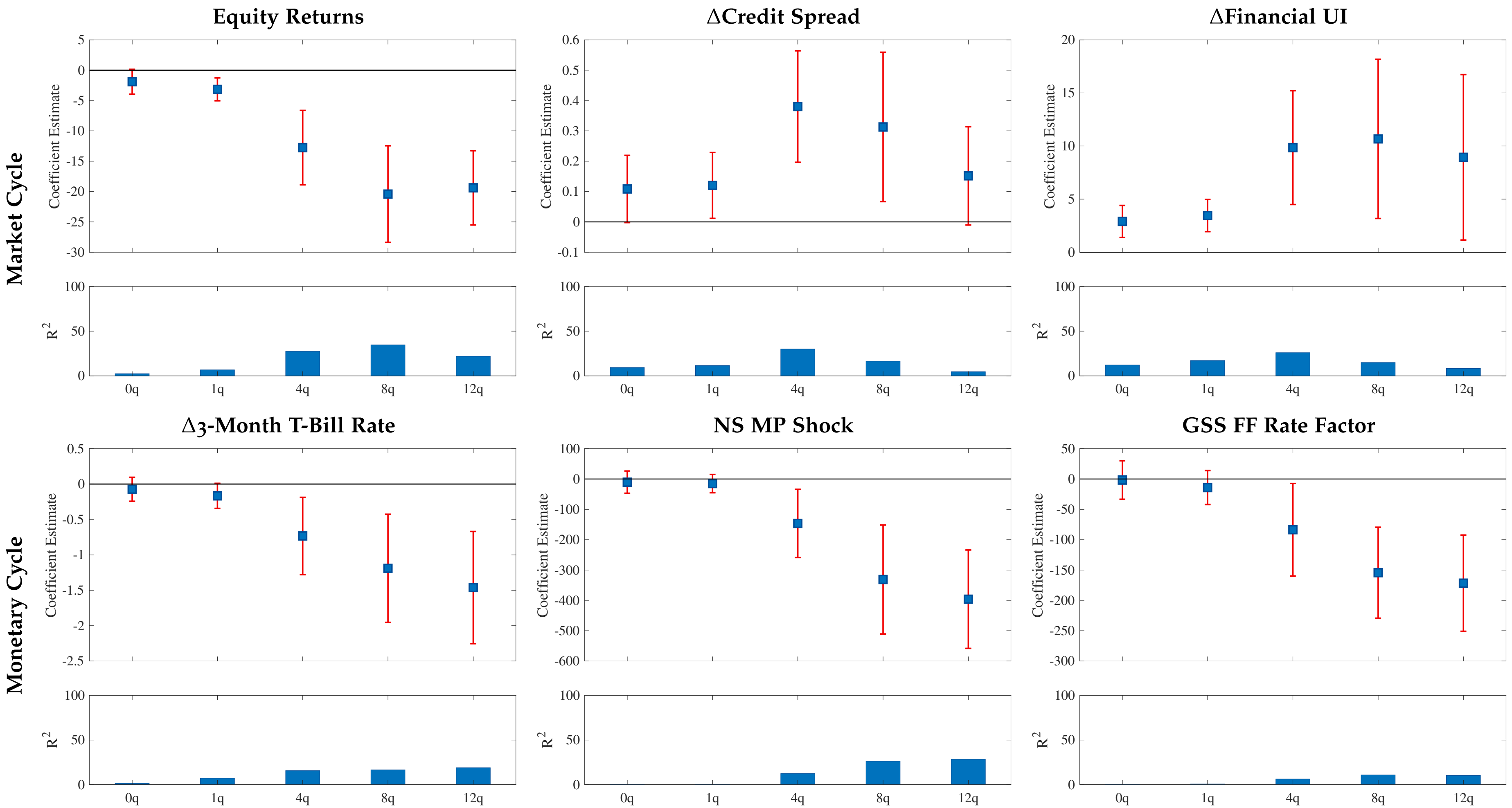


Fig. A.4: Market and Monetary Cycles: Different Horizons Predictability

The Figure depicts the coefficient estimates, 95%-confidence interval based on the Newey-West standard errors, and R^2 from the regression of future 1-, 4-, 8- and 12-quarter cumulative equity excess returns, change in credit spread and financial uncertainty index (top panel) and change in 3-Month T-Bill rate, NS monerary policy shock, and GSS Federal Funds rate factor (bottom panel) on corporate bond net issuance by financials. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

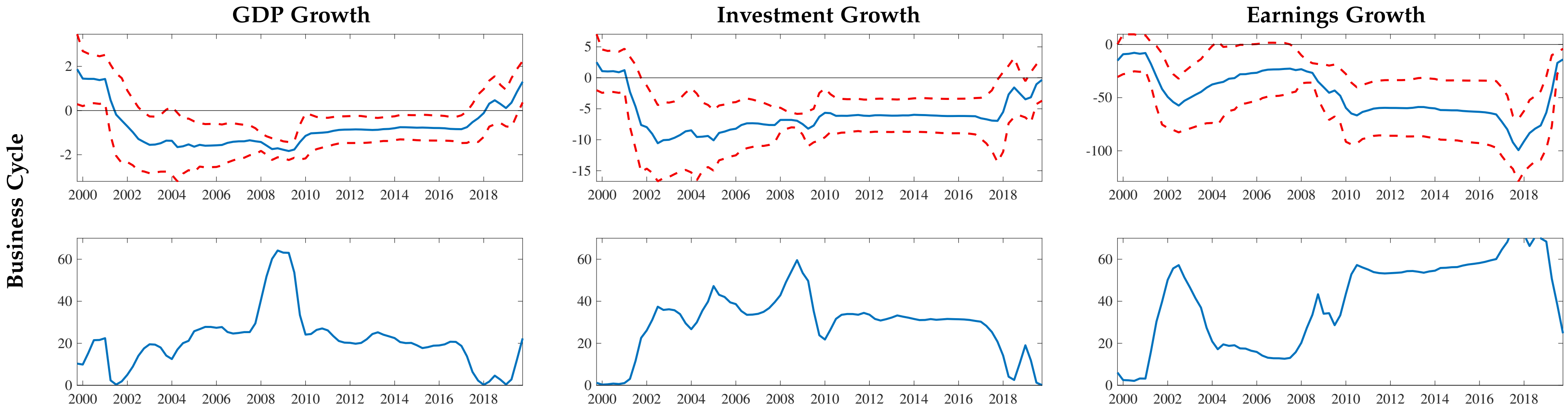


Fig. A.5: Time-Varying Business Cycle Predictability

The Figure depicts the coefficient estimates, 95%-confidence interval based on the Newey-West standard errors, and R^2 from the 10-year rolling window regression of future 4-quarter cumulative growth rate in growth rate in output, investment and earnings. on corporate bond net issuance by financials. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

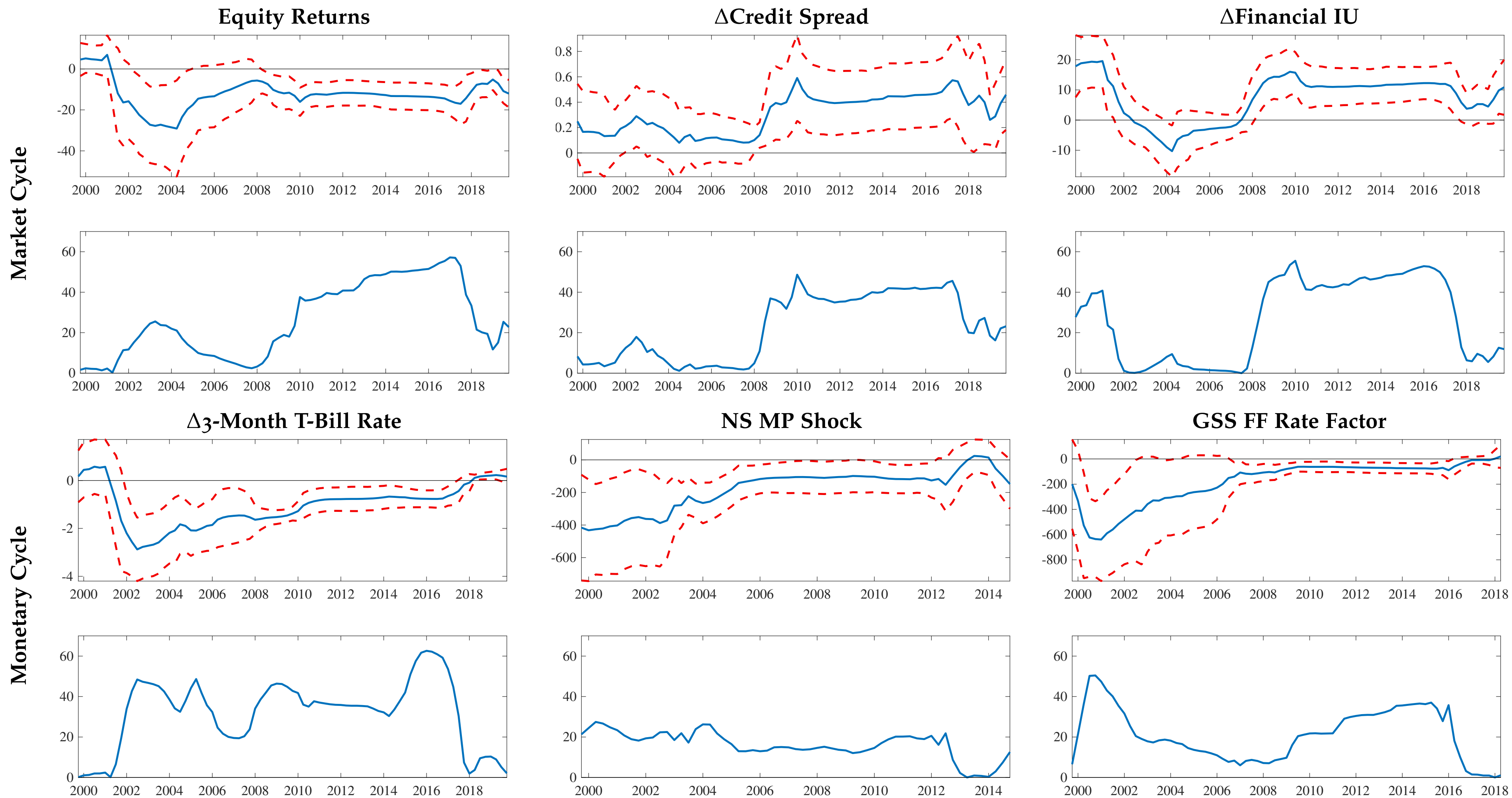


Fig. A.6: Time-Varying Market and Monetary Cycles Predictability

The Figure depicts the coefficient estimates, 95%-confidence interval based on the Newey-West standard errors, and R^2 from the 10-year rolling window regression of future 4-quarter cumulative equity excess returns, change in credit spread and financial uncertainty index (top panel) and change in 3-Month T-Bill rate, NS monerary policy shock, and GSS Federal Funds rate factor (bottom panel) on corporate bond net issuance by financials. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

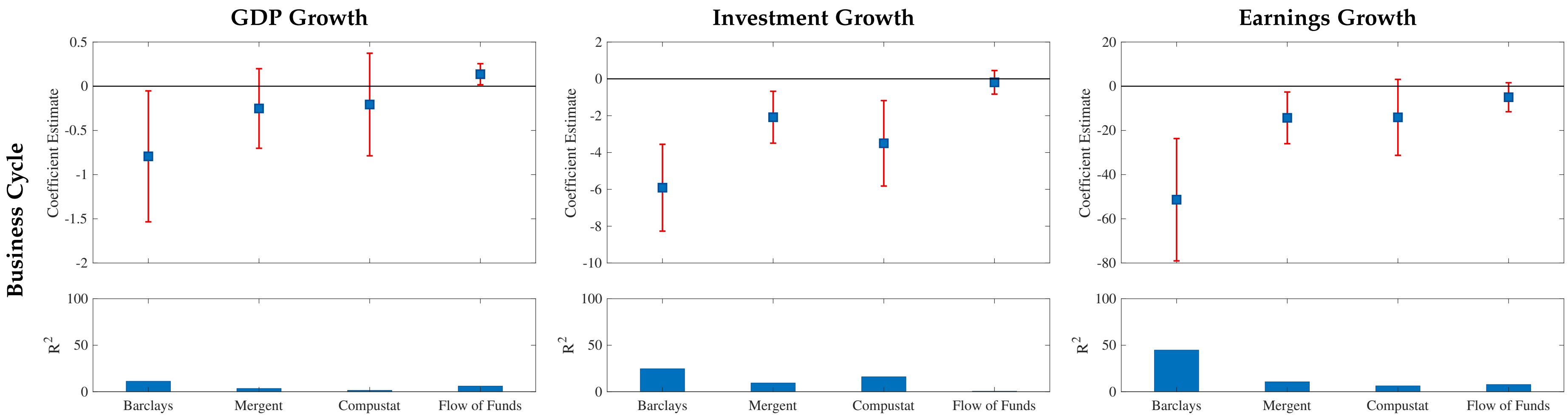


Fig. A.7: Business Cycle: Different Datasets

The Figure depicts the coefficient estimates, 95%-confidence interval based on the Newey-West standard errors, and R^2 from the regression of future 4-quarter cumulative growth rate in output, investment and earnings. on corporate bond net issuance by financials. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.

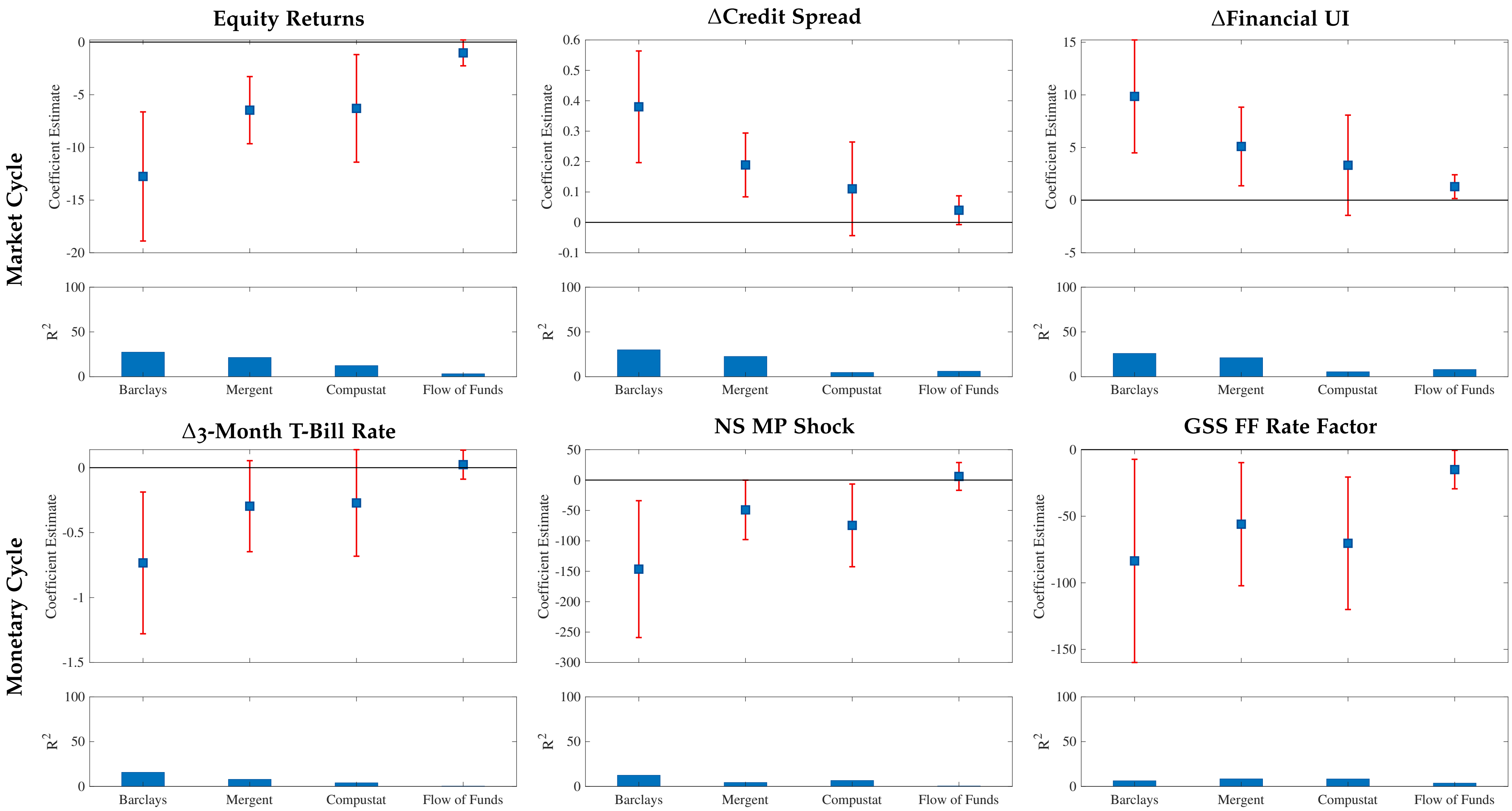


Fig. A.8: Market and Monetary Cycles: Different Datasets Predictability

The Figure depicts the coefficient estimates, 95%-confidence interval based on the Newey-West standard errors, and R^2 from the regression of future 4-quarter cumulative equity excess returns, change in credit spread and financial uncertainty index (top panel) and change in 3-Month T-Bill rate, NS monerary policy shock, and GSS Federal Funds rate factor (bottom panel) on corporate bond net issuance by financials. Net issuances are scaled by GDP. Quarterly data are adjusted for inflation over the sample 1990–2019.