Strategic archetypes, credit ratings, and cost of debt

Dang, M., Puwanenthiren, P., Jones, E., Nguyen, T.Q., Vo, X.V. and Nadarajah, S.

Strategic archetypes, credit ratings, and cost of debt

ABSTRACT

We examine the impact of archetypes of strategic behavior in business, proposed by Miles and Snow (1978, 2003), on corporate credit ratings. Using a sample of U.S. non-financial firms between 1981 and 2016, we document that firms with prospector-type strategies experience significantly lower credit ratings than firms with defender- and analyzer-type approaches. Our results remain robust after controlling for firm fixed effects, using alternative model approaches, propensity score matching approach, and alternative measures. The negative effect on credit ratings is more pronounced in firms with weaker information and governance settings and during periods of high economic policy uncertainty. Further, we find prospector-type firms with weak credit ratings have a higher cost of debt. Overall, our findings stress the need for more transparent and stringent governance systems for prospector-type firms to receive favorable ratings.

Keywords: Strategic archetypes; Credit ratings; Cost of debt; Information environment; Corporate governance; Policy uncertainty.

JEL Classification: G32; G34; L20

1. Introduction

In this study, we examine whether different types of business strategy, which we describe as strategic archetypes, affect the credit rating assigned to the company. We use the business typology identifed by Miles and Snow (1978, 2003) to identify the strategic archetype followed by sample firms and then exmaine how credit ratings vary according to the strategic archetype.

Credit ratings are important indicators of the creditworthiness of both individual securities and their issuers (Pinches and Singleton, 1978; Bongaerts et al., 2012; Opp et al., 2013).[1] In financial markets, credit rating agencies (CRAs) are increasingly significant due to their role in reducing information asymmetry between borrowers, lenders and investors (Creighton et al., 2007). Market participants, including debt issuers, investors and regulators, value credit ratings, as they provide an objective assessment of a firm's ability to satisfy short-term obligations, i.e., its credit risk, and the likelihood of default (White, 2003; Gray et al., 2006; Attig et al., 2021).

The relation between ratings and credit risk is both causal and complementary (Manso, 2013). On the one hand, credit ratings affect a firm's ability to access the capital market (Faulkender and Petersen, 2006; Sufi, 2009; Tang, 2009) and the price companies must pay to raise new debt, i.e., cost of capital (An and Chan, 2008; Gray et al., 2006). On the other hand, ratings have an impact on a firm's probability of default and the likelihood of financial distress. In particular, if a CRA assigns a high credit rating to a firm, its cost of capital is likely to be lower, resulting in a lower risk of default. Alternatively, a low CRA rating is

[1] Market participants frequently use credit ratings as reference points for the riskiness of firms and regulators use the opinions of CRAs when monitoring and disciplining a firm's activities (Cantor and Packer, 1997).

likely to result in a higher cost of capital and an increased risk of default (Manso, 2013). Therefore, accurate credit ratings are an essential component of the financial markets.[2]

Despite the importance of business strategy in determining a firm's competitiveness and sustainability, scholars have expressed concerns about the riskiness of the chosen strategic approach. For instance, Rajagopalan (1997) argues that the higher the default risk, the more a firm's business strategy deviates from traditional approaches. Habib and Hasan (2017) argue that firms that use innovative business strategies, such as prospectors, are more vulnerable to future crash risk, and their equity is more likely to be overvalued. Bentley et al. (2013) emphasize that a firm's business strategy can better capture business risk than other traditional risk-based indicators. Others (Kothari et al., 2002; Chambers et al., 2002; Ho et al., 2004) find greater risk-taking among innovative firms. Following these arguments, we argue that distinct business strategies will be associated with differing credit ratings and default probabilities. Furthermore, an emerging strand of this literature emphasizes the importance of business strategy in auditing services and auditor effort (Bentley et al., 2013), annual report readability (Lim et al., 2018), and auditor report quality (Chen et al., 2017; Bentley-Goode et al., 2017). Therefore, as external creditworthiness opinion providers, CRAs, similar to auditors, should be concerned with a firm's business strategy in addition to quantitative firm characteristics.

Thus our study investigates the relationship between business strategy, referred to as strategic archetypes (i.e., firms' archetypal patterns of strategic behavior), and corporate credit ratings. We do so in the context of the U.S. markets, where credit ratings have become embedded in the fabric of financial markets for lending decisions and debt pricing, and

[2] In determining credit default risk, rating agencies consider a number of quantitative firm-level financial variables, including firm size, leverage, liquidity, growth, and financial market performance (For a comprehensive overview, see, Matthies (2013)). They are also concerned about the effect of qualitative information such as analyst following (Cheng and Subramanyam, 2008), managerial ability (Cornaggia et al., 2017), innovative efficiency (Griffin et al., 2018), and internal control adequacy (Bhandari and Golden, 2021).

regulators routinely use ratings as a monitoring tool. Our research focuses on Miles and Snow's (1978, 2003) typology of business strategy because of its broad scope (Langfield-Smith, 1997), strategic intention (Walker Jr and Ruekert, 1987), validity as well as robustness (Bentley et al., 2013; Habib and Hasan, 2021; Kong et al., 2022). Accordingly, the three types of business strategy are *prospectors*, who seek growth and innovation, *defenders*, who choose stability and cost-efficient, and *analyzers*, who strike a balance between innovation, stability, and cost-efficiency. Prospectors, according to the typology, are likely to have a higher probability of default than other strategic archetypes because of the inherent risks associated with higher levels of intangible assets and uncertain cash flows. Prospector-type firms often invest more in R&D, innovate more, and have longer cash flow horizons as a result of R&D and the development of new products and markets. Such firms seek operational efficiency through technology and organizational flexibility while creating value through growth. Building on these arguments and based on the inherent risk and uncertainty associated with the prospector approach, our first hypothesis is that prospectors have lower credit ratings than other archetypes. Using a sample of U.S. non-financial firms between 1981 and 2016, we document that firms with prospector-type strategies experience significantly lower credit ratings than firms with defender- and analyzer-type approaches, confirming our hypothesized relation.[3] Our results remain robust after controlling for firm fixed effects, using alternative model approaches, propensity score matching approach, and alternative measures.

Though firms with a prospector-type strategy have lower debt ratings, our major finding is likely to raise endogeneity problems because omitted variables impact on both business

[3] To capture business strategy (*BUSTRA*), we follow a method similar to Ittner et al. (1997) and Miles and Snow (1978, 2003), and assign a value of one (zero) for prospector-type (defender and analyzer) firms. For corporate credit ratings, we assign ordinal values to the letters of S&P's long-term credit ratings, ranging from AAA through D or SD: the S&P 22-point scale (*S&P22*) takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1); the S&P 20-point scale (*S&P20*) takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0); and the S&P 7-point scale (*S&P7*) takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1).

strategy and corporate credit ratings together, biasing our results. For instance, prospectors with a high-quality top-management team are more likely to build value through growth and produce quality earnings, as well as less likely to receive lower debt ratings. To rule out these concerns, we adopt several specifications. First, we choose a firm-fixed effects model approach because it reduces the likelihood of other exogenous variables driving both strategies and debt ratings simultaneously. Second, we use a five-year lag of strategy approach to account for unobserved contemporaneous factors that could have influenced earlier corporate business strategy approaches. Third, we consider a propensity score matching analysis to prevent systematic differences among firms with different strategy approaches (prospector-type, analyzer-type, and defender-type) and to mitigate selection bias induced by unobserved firm-specific features. Additionally, we use changes in both the dependent and independent variables instead of levels to validate causal inferences because the levels of many variables are prone to give erroneous results. Overall, our empirical finding holds even after adjusting for possible endogeneity bias.

Having established a negative relationship between business strategy and firm credit ratings, we turn our attention to how information asymmetry and corporate governance mitigate the negative effect. Asymmetry in information is higher in prospector firms since they are more uncertain about the success of future technologies (Kothari et al., 2009). In such firms, annual report readability is lower (Lo et al., 2017; Lim et al., 2018), financial reporting irregularities are greater (Bentley et al., 2013), and internal control over financial reporting is weaker (Bentley-Goode et al., 2017). Prospector-type firms also incur higher agency costs since the managers of those firms have more discretion in achieving innovation objectives (Rajagopalan, 1997; Chen and Keung, 2019). Therefore, we predict a stronger effect of business strategy on credit ratings in weaker information environments (higher information asymmetry).

Furthermore, we expect the relationship between business strategy and credit ratings to be more pronounced in weaker corporate governance settings if governance moderates firms' risk with diverse strategies. Consistent with our predictions, we show that the negative effect on credit ratings is more pronounced in firms with weaker information and governance settings.[4] Hence, our results suggest that information and governance settings are crucial in determining a firm's credit ratings.

Since the capital market environment also affects credit and default risk (Poon and Chan, 2008; Attig et al., 2021), we also examine whether the effect of business strategy on credit ratings is significantly stronger for firms with higher exposure to policy uncertainty. To measure policy uncertainty, we use the index of economic policy uncertainty developed by Baker et al. (2016) and the U.S. presidential elections. We document the relation between prospector-type strategy and credit ratings to be more pronounced only for firms exposed to economic policy uncertainty. However, the level of credit ratings for prospector-type firms remains unaffected during the periods around U.S. elections.

In our final test, we examine whether the cost of debt is higher for prospector firms with low credit ratings than for high ratings, where we use interest rate spread as a proxy for the cost of debt. Consistent with prior studies (Hand et al., 1992; Yi and Mullineaux, 2006; Tang, 2009), we document that prospector-type firms with weak credit ratings have a higher cost of debt. Our evidence demonstrates that lower credit ratings have a significant impact on a firm's cost of capital.

Overall, our study makes several novel contributions to the literature. First, strategic archetypes, i.e., the business strategy followed by the company when determined using the typology identified by Miles and Snow (1978, 2003), are found to be critical determinants of

[4] The measures for information environment (corporate governance) are financial analyst coverage and Amihud's illiquidity estimate (institutional ownership and board independence).

credit ratings and the cost of debt. To the best of our knowledge, this study is the first to investigate the link between credit ratings and strategic archetypes, despite the extensive extant literature on credit ratings and business strategy. Understanding this relationship is crucial for investors to understand the effect of strategic approaches on their ratings, affecting the financial and default risk. Correspondingly, our results have important implications for rating agencies when determining their opinion of the firm's creditworthiness and default risk. The accuracy of such ratings is of vital importance to the effective functioning of capital markets and the efficient provision of debt capital at an appropriate cost, especially given the controversies regarding the information relevance of CRAs (Mathis et al., 2009; Bolton et al., 2012; Becker and Milbourn, 2011). From the rating agencies' perspective, accurate assessment of firm's default risk is necessary to increase their competitiveness and reputation, particularly with competition in the ratings market increasing. Since credit ratings affect market behavior and consequently firms' operations, anticipating external agencies' perception of the firm risk is also important to firms. Our findings emphasize the role of information, corporate governance, and uncertain environments in determining firms' credit ratings for different strategic archetypes.

The remaining of our paper is as follows. Section 2 provides the theoretical background and hypotheses, while Section 3 describes our data and method. In Section 4, we provide the results as well as other analyses. Section 5 concludes with the limitations and directions for future research.

2. Hypotheses development

2.1 Business strategy and corporate credit ratings

Business strategy refers to the vision and objectives that guide a firm's ability to compete in a certain industry (Walker Jr and Ruekert, 1987; Varadarajan and Clark, 1994). Several studies have classified firms' business strategies based on product and price (Porter, 1980),

exploration or exploitation (March, 1991), operations, product, and customer (Treacy and Wiersema, 1995). Given its broad scope (Langfield-Smith, 1997), strategic intention (Walker Jr and Ruekert, 1987), validity, and robustness (Bentley et al., 2013; Habib and Hasan, 2021), Miles and Snow's (1978, 2003) typology of business strategies has acquired prominence, acceptance, and adoption in the academic literature (Hambrick, 1983).

Miles et al. (1978) identifies three overarching types of business strategies that may exist within any business: prospectors, analyzers, and defenders.[5] These strategies comprise different approaches by which firms construct and exploit their competitive advantages in terms of products and markets, and how they design technology and organizational structures to fulfill their objectives (Miles et al., 1978; Snow and Hrebiniak, 1980).[6] The objectives of firms following a prospector approach are expected to be more innovative, flexible in the use and development of technology, and dynamic in terms of organizational structure. Such firms constantly scan the environment for new product and market opportunities. They also spend more on R&D and invest in multiple technologies with low repetition. Prospectors' administrative structures are dominated by top management team, and R&D experts in the management are result-driven. These firms' divisions are less formalized with decentralized control mechanisms. They may also be comprised of large, diverse, and transitory coalitions (Miles et al., 1978).

On the other hand, defenders rely on stability and cost-efficiency by focusing on a narrow product-market domain and sustaining current goods and services. Such firms are risk-averse and prefer to stick to what they know best rather than changing their strategy. Defenders

[5] Although Miles and Snow (1978, 2003) also define a fourth typology as reactor, this strategy is not clear and consistent across the business operations and difficult to identity properly. Thus, it is often neglected in empirical studies.

[6] We refer to these types of business strategy as "archetypes". Archetypes are, amongst other definitions, patterns of behavior, and in our case, strategic behavior by firms. This term is more helpful for description of the business types used by Miles and Snow (1978, 2003) than the simple term "business strategy", which is a much broader term and applied in many other contexts with different meanings and interpretation.

make profit by taking advantage of current customers with current products and markets. They also seek ways to save costs by adapting core technology with minimum R&D investment, and their organizational structure is traditional and formal based on these objectives (Miles et al., 1978). Prospectors and defenders are on the two poles of the adjustment strategy continuum, whereas the analyzer is a balance between approaches and also a combination of the two. The analyzer can minimize risk and optimize profits by preserving traditional products and customers while exploring new growth opportunities. As a result, the analyzer's primary objective is stability and flexibility. However, the study by Miles et al. (1978) stresses that pursuing such a balanced strategy is difficult.

Different business typologies (or strategic archetypes) have distinct traits that can contribute to varying levels of firm risk, which can affect their credit ratings. Specifically, Bentley et al. (2013) argue that a firm's business strategy can better capture their client business risk than other traditional risk-based indicators. Prospector firms overextend their resources to pursue innovative products and put short-term profitability at risk (Ittner et al., 1997; Miles and Snow, 2003). Prospectors exhibit a higher pay gap than defenders (Kong et al., 2022) and face lower profitability and must seek financing for their extensive R&D efforts, implying a higher business risk than defenders. In addition, prospectors' deviation from the norm (also known as strategic deviance) exacerbates decision and operational risk due to higher costs and inefficiencies (Anderson, 1988; Dong et al., 2021). Prior evidence shows a positive relationship between strategic deviance and firm default risk (Rajagopalan, 1997). Habib and Hasan (2017), employing a large sample of U.S. firms during 1974–2012, find that firms using innovative business strategies, such as prospectors, are more vulnerable to future crash risk. Due to investors' positive expectations about the firm's prospects and returns, their equity is more likely to be overvalued, which increases future crash risk.

Similarly, Kothari et al. (2002), Chambers et al. (2002), and Ho et al. (2004) find that corporate innovation, which is inherent among prospector-type firms, invariably involves a greater degree of risk-taking. Although innovation has the potential to boost a firm's net asset value, generate more future cash flow, and improve firm performance, these outcomes are uncertain (Cohen et al., 2013). In the event of failure, the realized value of these R&D investments may be lower than the value of tangible assets. These intangible assets are difficult to price fairly and can confound market participants' efforts at price discovery (Aboody and Lev, 2000; Barth et al., 2001). Barth et al. (2001) also find high uncertainty in valuing firms with a large proportion of intangible assets. Hence, Standard & Poor's (2013) considers firm innovation as a risk factor when assessing the likelihood of default for their clients. As a result, higher levels of innovative e□ciency in particular and business strategy, in general, could lead to increased downside risk and lower the credit ratings (Fischer and Verrecchia, 1997; Plummer and Tse, 1999). Between 1992 to 1998 across German manufacturing firms, Czarnitzki and Kraft (2004) confirm a significant effect of innovation on a firm's credit ratings. However, this relation is inversely U-shaped, implying that innovation helps a firm's credit ratings improve to some extent, and too much innovation is likely to bring negative effects.

Since prospectors are defined as having an innovation objective associated with higher uncertainty and default risk, we expect these firms to have lower credit ratings than other strategic archetypes, i.e., defenders or analyzers. Thus, our first hypothesis is as follows:

Hypothesis *H1*: *Prospector firms have lower credit ratings than defenders and analyzers.*

2.2 Information asymmetry and governance environments

The existing literature on business strategy recognizes that information asymmetry, corporate governance, and business uncertainty vary depending on the firm's business

strategy (Matthies, 2013). Therefore, this subsection discusses the impact of information asymmetry, corporate governance, and uncertainty on the credit ratings for different strategic archetypes.

Information asymmetry

CRAs improve market efficiency by reducing information asymmetry between market participants (Frost, 2007; Cornaggia et al., 2017; Abad et al., 2020). Previous studies discuss the impact of the information environment on a firm's credit ratings. For instance, Bonsall et al. (2018) argue that CRAs produce more timely and accurate credit ratings for firms with more media attention due to superior risk assessment capability. Cheng and Subramanyam (2008) show that credit ratings are better for firms with a larger analyst following, and this relationship changes depending on a firm's information environment. However, prospector firms may encounter greater information asymmetry than defenders due to their higher proportion of intangible assets, significant growth opportunities, and business uncertainty. First, these intangible assets (primarily in the form of R&D investments) are difficult to evaluate fairly, making it difficult for the public to assess their value (Aboody and Lev, 2000; Barth et al., 2001). Second, prospectors have more growth opportunities and exhibit more rapid growth patterns than defenders (Miles and Snow, 2003, 1978). Since the managers of prospector-type firms have an information advantage over outside investors regarding investment opportunities, information asymmetry is often higher in these firms (Smith Jr and Watts, 1992; Gaver and Gaver, 1993). Third, prospectors' inherent business uncertainty causes variations in operational and stock performance (Cheng and Kesner, 1997; Rajagopalan, 1997), resulting in increased information asymmetry between the firm and its external stakeholders (Ghosh and Olsen, 2009). Prospectors face a higher level of information asymmetry than defenders due to a greater probability of new investment and future technology failure (Rajagopalan, 1997; Kothari et al., 2009; Bentley et al., 2013). During the

period 1981–2016, Zhang (2021) shows higher levels of information asymmetry among U.S. prospector-type firms, highlighting that stock prices of innovation-oriented firms are less informative than defenders. Given this backdrop, we expect the negative relationship between prospector-type firms and credit ratings to be stronger in firms with weaker information settings. Hence, our second hypothesis is:

Hypothesis *H2:* *The negative relation between prospector firms and credit ratings is more pronounced for firms with weaker information environments.*

Corporate governance

Strong corporate governance is critical for mitigating agency-related problems between shareholders and managers, and between creditors and shareholders (Jensen and Meckling, 1976). Effective governance can avoid value-destroying activities like empire-building, pursuing pet projects, and perquisite consumption (Hoang et al., 2021), while it can restrain managers from engaging in earnings management (Faleye et al., 2011; Xie et al., 2003). Through goal congruence between managers and shareholders, good corporate governance limits managerial opportunism, reduces agency costs and overinvestment, and increases firm performance (Chen et al., 2012). Weak corporate governance, on the other hand, can harm a firm's financial position, increase the probability of default, and expose creditors to losses (Fitch Ratings, 2004). Thus, CRAs gather information on a firm's top management and assess how firms handle their business and financial risk (DeHaan, 2017). For example, when forming opinions, Standard & Poor's (2019) consider the financial policies and top-management conservatism, whereas Fitch Ratings (2020) view conservative top-management policies as a signal of a firm's greater financial flexibility and creditworthiness. CRAs are concerned about corporate governance as a risk factor (Cornaggia et al., 2017).

Prior research shows that credit ratings are higher for firms with stronger corporate governance. Using a sample of U.S. firms, Alali et al. (2012) show that better corporate

governance leads to higher bond ratings. Large shareholders' active monitoring, combined with decreased information asymmetry because of increased disclosure, helps reduce agency conflicts and debtholders' risk exposure.

Hsu et al. (2018) claim that governance and monitoring mechanisms by firms differ depending on their business strategies. Specifically, firms who pursue a prospector strategy will incur higher agency costs than defenders (Rajagopalan and Finkelstein, 1992; Ittner et al., 1997; Rajagopalan, 1997; Chen and Keung, 2019). Differences in prospectors' organizational structures can explain this, at least in part. Marketing and R&D professionals, who are more result-oriented, less institutionalized, and decentralized, dominate the leadership of such firms. This could result in a loss of control over agency costs. It is also possible that the management team will be larger, more diversified, and more transient (Miles et al., 1978). This flexible structure provides managers of prospector-type firms with greater discretion, allowing them to operate in their self-interest at the expense of other stakeholders (Mayers and Smith Jr, 1988; Rajagopalan and Finkelstein, 1992; Ittner et al., 1997; Rajagopalan, 1997; Chen and Keung, 2019). Prospector-type firms may find it more difficult to monitor and control managerial opportunism and self-interest (Rajagopalan, 1997). Since prospectors cope with greater product and market uncertainty, such firms are more likely to have loose and flexible governance mechanisms. Managers have more freedom to respond to market conditions while pursuing private benefits of control (Bentley et al., 2013). Prospectors have weaker internal control mechanisms than defenders (Bentley-Goode et al., 2017), while the lack of transparency and disclosure in such firms demonstrates weaker corporate governance (Habib and Hasan, 2021).

Based on the above discussion, we believe that weaker corporate governance will exacerbate the negative relationship between credit ratings and prospector firms. The effect is

likely to be weaker for firms following the analyzer and defender strategies. Thus, our third hypothesis is:

Hypothesis *H3*: *The negative relation between prospector strategy and credit ratings is more pronounced for firms with weaker governance environments.*

2.3 Policy uncertainty

Government policies shape the environment in which business is conducted. Unexpected changes in macro-economic factors including inflation, interest rates, unemployment, exchange rates, national budget deficits, and elections might result in monetary, fiscal, or regulatory policy adjustments (Bordo et al., 2016; Ng et al., 2020; Danisman et al., 2021; Ozili, 2021) which in turn affect firms' operations and competitiveness. Since policy uncertainty arises from macro-economic factors related to current and future government policies (Al-Thaqeb and Algharabali, 2019), firms are more vulnerable to credit risk during periods of high policy uncertainty. Kaviani et al. (2020) document that higher economic policy uncertainty increases firms' financial constraints and prevents firms from relying on external financing to pursue profitable investment opportunities. The cost of debt capital will rise as these firms are exposed to more credit risk.

Given the inherent uncertainty associated with the prospector strategy, we believe that greater policy uncertainty will exacerbate their business risk. During periods of high economic policy uncertainty, the likelihood of collapses in firms' stock prices increases (Jin et al., 2019). Similarly, Lou et al. (2021) show that economic policy uncertainty has an adverse impact on a firm's innovation. Hence, during periods of high policy uncertainty, we predict that prospector credit ratings will be lower. Our fourth hypothesis is therefore:

Hypothesis *H4*: *The negative relation between prospector strategy and credit ratings is more affected during periods of high policy uncertainty.*

2.4 Costs of debt

Credit ratings reflect the creditworthiness of both issuers and securities. Given the market's information asymmetry, investors rely on credit ratings to make investment decisions. Low credit ratings are associated with a higher chance of default, necessitating a higher yield. Previous research documents significant impacts of credit ratings on bond yields (Hand et al., 1992; Yi and Mullineaux, 2006; Tang, 2009). Using S&P and Moody's data between 1981 and 1983, Hand et al. (1992) show that average excess returns are larger for bonds with lower ratings. Notably, the negative effect is asymmetric, with downgrades having a stronger impact than upgrades. Downgrades raise the cost of debt, forcing lenders to demand higher rates of return due to the deterioration in a firm's creditworthiness (Manso, 2013). Higher ratings reduce a firm's cost of debt capital (Kisgen and Strahan, 2010), whereas managers regard credit ratings to be the most important factor impacting on a firm's debt policy (Graham and Harvey, 2001). Thus, we expect the cost of debt to be higher for prospectors with lower credit ratings. Our last hypothesis is as follows:

Hypothesis *H5*: *Prospector firms with lower credit ratings have higher costs of debt.*

3. Data and empirical model

3.1 Data and sample

To examine the impact of archetypes of strategic business behavior on S&P (Standard & Poor's) credit ratings, we compile data from various sources: the Compustat (S&P credit ratings, business strategy, and accounting measures); CRSP (stock price); as well as 13F (institutional ownership).[7] In building our sample: (1) we consider observations (56,996 firm-years) over the period 1981–2016, with 1981 and 2016 being the first and last years for which

[7] The CRSP and the 13F stand for Centre for Research in Security Prices stock file and the Thomson-Reuters Institutional Holdings, respectively.

S&P ratings are available; (2) we use a comprehensive list of non-financial firms listed on U.S. stock exchanges, excluding non-U.S. firms, financial firms, and utility firms[8]; (3) we retain non-missing observations for credit ratings, business strategy, and controls; as well as (4) we winsorize all continuous (except binary) variables at the first and 99th percentiles. Following these steps, we derive our sample from an unbalanced panel of 24,421 observations from 1981 to 2016.

3.2 Empirical measures

To quantify S&P debt ratings, we consider letters assigned to S&P's long-term credit ratings. These letters range from AAA through D or SD, with AAA signifying better credit quality and D or SD indicating worse credit quality. To reflect a quantitative measure, we follow prior studies (Ashbaugh-Skaife et al., 2006; Kim et al., 2013; Ham and Koharki, 2016; DeHaan, 2017; Cornaggia et al., 2017) and translate letter ratings into ordinal values using the following scales: (1) the S&P 22-point scale (*S&P22*), where better (worse) letter ratings correspond to the higher (lower) value of 22 (1) (e.g., AAA = 22, ….D or SD = 1); (2) the S&P 20-point scale (*S&P20*), where better (worse) letter ratings correspond to the higher (lower) value of 20 (0) (e.g., AAA = 20, …..D or SD = 0); and (3) the S&P 7-point scale (*S&P7*), where better (worse) letter ratings correspond to the higher value of 7 (1) (e.g., AAA = 7, …..D or SD = 1). Our ordinal measures (i.e., *S&P22*, *S&P20*, and *S&P7*) directly correlate with S&P debt ratings.[9]

For classification of companies to a particular strategic business approach (*BUSTRA*), we follow a method similar to Ittner et al. (1997) and Miles and Snow (1978, 2003) and assign a value of one (zero) for prospector-type (defender and analyzer) firms. This encapsulates six company-year estimates of business activity based on a rolling five-year average: (1) the

[8] To exclude firms from financial (between 6000–6999) and utility (between 4000–4999) industries, we use a four-digit standard industrial classification (SIC) codes, consistent with Ham and Koharki (2016).
[9] See Appendix 1 for a detailed definition of variables used in the study.

company's propensity to search for new products; (2) its ability to produce and distribute products and services efficiently; (3) the company's historical growth patterns and future potential investment opportunities; (4) the company's focus on new products and services; (5) its organizational stability; as well as (6) its commitment to technological efficiency.[10] Firms are scored in each category by industry and year, with the highest (lowest) quintile receiving a score of 5 (1).

Further, we compute a discrete composite measure by summing the scores for each variable for each firm year. The scoring system allows for a maximum score of 30 and a minimum score of 6. Therefore, we classify firms receiving a score of 6 to 12 as defenders, firms receiving a score of 13 to 23 as analyzers, while firms receiving a score of 24 or above as prospectors.

3.3 Empirical model

To explore the relation between corporate business strategy and a firm's credit ratings, we use the following panel specification model as in Equation (1):

$$\boldsymbol{RATINGS_{i,t} = \alpha + \beta BUSTRA_{i,t-1} + CONTROLS_{i,t-1} + \varepsilon_{i,t}} \qquad \boldsymbol{(1)}$$

The dependent variable of interest, $RATINGS_{i,t}$, indicates the numeric translation of S&P debt ratings (either *S&P22*, *S&P20*, or *S&P7*) for firm *i* in year *t*. Our variable of interest, $BUSTRA_{it-1}$, takes a value of one (zero) for prospector-type (defender and analyzer) firms. Following prior studies (Ashbaugh-Skaife et al., 2006; Zhang, 2006; Avramov et al., 2007; Ham & Koharki, 2016; DeHaan, 2017; Cornaggia et al., 2017; Amiri-Moghadam, 2021), we use various controls (measured in year *t-1*), including firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), operating loss (*LOSS*), tangibility (*TANG*), interest coverage (*INTCOV*), stock return volatility (*SDRET*), institutional ownership (IO), firm age (*LNAGE*), cash flow volatility (*CASVOL*), dividend payment (*DIV*), and CEO ownership

[10] See Appendix 2 for a detailed explanation of the estimation procedure.

(*CEOWN*). In all specifications, we control for industry and year fixed effects. We classify industries based on two-digit SIC codes. All our specifications include *t*-statistics based on robust standard errors clustered by firm in parentheses.[11]

3.4 Summary statistics

In Table 1 (Panel A), we compare mean controls across S&P debt rating scales. Ratings are higher for larger firms, and as the average size of firms shrinks, so does the rating of firms. As predicted, leverage has a more straightforward declining relation with ratings, implying that the lower the leverage, the higher the ratings.[12] Through the rating scale, average net income to total assets decreases, with average profitability turning negative after BB-. As ratings drop, the market to book ratio drops as well, with a noticeable drop when rating changes to C (i.e., below B-). As ratings decline, the proportion of firms that make losses rises, and the number of firms that make losses rises dramatically after BB/BB-. As expected, interest coverage diminishes as ratings decline and firms begin to struggle to meet their interest costs beyond CCC+. For the most part, the standard deviation of return, which indicates risk, rises. Finally, institutional ownership is quite high, which could be plausible in a market-based economy with many mutual and index-tracking funds. Institutions are less likely to invest in lower-rated stocks, particularly those rated CCC+ or lower.

In Table 2 (Panel B), we provide a comparison of mean and median ratings across three types of business strategy, where we notice that both firms classified as defenders and analyzers have significantly higher average ratings than prospectors

[Insert Table 1 here]

[11] As in Appendix 3, correlation matrix confirms that multicollinearity among the baseline variables is unlikely because correlation coefficients are less than 0.70 (Liu et al., 2014). However, correlation coefficients among S&P ratings measures are higher than 0.70 (>0.70). Therefore, we estimate our panel specification models separately for each rating measure (S&P22, S&P20, and S&P7).

[12] The rating scales of C and D, on the other hand, have slightly less leverage than the scales CCC- and CC.

In Table 2, we provide descriptive statistics for credit ratings, business strategy, and control measures. In our sample, around 63% of firms are prospectors. The mean credit ratings are 12.50 for *S&P22*, 10.50 for *S&P20*, and 3.50 for *S&P7*, which are comparable to that of Cornaggia et al. (2017) and Ashbaugh-Skaife et al. (2006). Further, controls look relatively standard, having quite similar mean and median values.[13]

[Insert Table 2 here]

4. Empirical results

4.1 Baseline evidence: Strategic archetypes and credit ratings

In Table 3, we examine whether there is any significant relationship between types of strategies, as identified in the framework of Miles et al. (1978), and credit ratings. As in Equation (1), we separately regress *S&P22* (Column 1), *S&P20* (Column 2), and *S&P7* (Column 3) on our variable of interest, *BUSTRA*, where we assign a value of one (zero) for prospector (defender and analyzer) firms, and controls. Prospector firms, which are believed to be dynamic and innovative, seek out new business opportunities and strive for high efficiency in their use of technology, organizational structure, as well as products and service provision and distribution. In all specifications, we include year and industry-fixed effects.[14]

Across all models, coefficients on *BUSTRA* are all negative and significant at the 1% level, suggesting a significant negative relation between prospector firms and S&P debt ratings. Therefore, prospector firms are associated with lower levels of credit ratings, lending

[13] The exception is *LOSS*, a dummy variable and hence has a median of either 1 or 0, with zero suggesting that the most firms are profitable (around 77%). Investors should be aware of a few instances where minimum values are negative (e.g., interest coverage). Further, the average institutional ownership is 60%, with certain institutions owning 100% of the sample.

[14] Our inferences remain unchanged when we regress *S&P7* using an ordered logit model, a model similar to Ashbaugh-Skaife et al. (2006).

strong support to Hypothesis *H1*.[15] The results made by Kothari et al. (2002), Chambers et al. (2002), and Ho et al. (2004) show that prospector firms inherently take more risk, which is likely to impair the creditworthiness of those firms. In determining the ratings of these firms, the uncertainty of the outcome weighs against the possibility of increasing cash flows (Cohen et al., 2013). When considering the possibility of project failure, concerns about the value of intangible assets are likely to contribute to a lower perception of prospector firms' creditworthiness (Aboody and Lev, 2000; Barth et al., 2001). Indeed, innovation is a risk factor in determining the likelihood of default (S&P, 2013), while Ittner et al. (1997) and Miles and Snow (2003) argue that prospector firms are prone to overextending themselves in order to capitalize on growth prospects and innovation, which should be factored into their credit ratings. Using a sample of German firms, Czarnitzki and Kraft (2004) confirm that intense innovation activity has a negative effect on credit ratings.

For our controls, we find directional effects consistent with our expectations at the 1% level of significance. In line with prior research findings (Ashbaugh-Skaife et al., 2006; Cornaggia et al., 2017; Bonsall et al., 2017; Ma et al., 2021), coefficients on firm size, net income to total assets, tangibility, and interest coverage turn positive (significant at the 1% level), suggesting a positive effect on credit ratings, whereas leverage and operating loss have negative coefficients (significant at the 1% level), implying a detrimental effect on credit ratings. Further, firms with greater return volatility (Ham and Koharki, 2016; Ma et al., 2021) and higher institutional ownership (Ashbaugh-Skaife et al., 2006; Bonsall et al., 2017) exhibit lower and higher credit ratings, respectively.

To summarize, we find strong empirical support for Hypothesis *H1* that firms classed as prospectors are less likely to enhance S&P debt ratings because of risky behavior. Our results

[15] In unreported results, we find that our results remain qualitatively unchanged when we employ business strategy discrete score with values ranging from 6 to 30 with high=prospector (24-30), middle=analyzer (13-23), and low=defender (6-12).

suggest that the higher business risk associated with pursuing a prospector approach has a detrimental impact on the creditworthiness of these firms.

[Insert Table 3 here]

4.2 Robustness checks

4.2.1 Firm fixed effects (FFE) and lagged specification

Although the regression in Equation (1) accounts for a broad set of firm characteristics, the established relationship between business strategy and a firm's credit ratings, on the other hand, is a challenge because other exogenous variables are likely to drive both strategies and debt ratings simultaneously. Therefore, to rule out the issue of (any time-invariant) unobservable characteristics of firms causing omitted-variable bias in our specification, we re-estimate Equation (1) using the FFE estimator, where we control for the firm- and year-fixed effects, instead of industry fixed effects.

Further, to account for unobserved contemporaneous factors that could have influenced the business strategy approach in the past, we regress *S&P22*, *S&P20*, and *S&P7* on a five-year lag of strategy ($BUSTRA_{t-5}$) approach, while other variables stay unchanged. The results in Table 4 continue to display a significant negative effect of business strategy on a firm's debt ratings (at the 1% level for five out of six cases), implying that our results are unlikely to be influenced by the time-invariant unobservable firm (Columns 1-3) as well as any unobserved contemporaneous factors (Columns 4-6).

[Insert Table 4 here]

4.2.2 Propensity score matching (PSM) analysis and Sub-sample groupings

One could argue that prospector firms differ significantly in character from analyzers or defender firms. As for robustness check, we conduct a propensity score matching (PSM)

analysis to avoid systematic differences as well as identify unobserved factors (Liu, 2018). Further, this method helps us mitigate selection bias (if any) issues arising from firm characteristics (e.g., Guindy, 2021). To construct treatment and control groups of firms, we compare the firms with prospector-type (Treatment) with firms with defender- and analyzer-approaches (Control). To find a control group, we estimate propensity scores using our base set of controls and match on year, two-dight SIC codes, and closest propensity score with a maximum distance of 1% value with no-replacement. The results in Panel A of Table 5 show that the treatment group of firms is indistinguishable in terms of observable characteristics to the control group, implying that all variables are closely matched with no significant differences. We also re-estimate Equation (1) in a PSM framework, using the above matched treatment-control pairs. Our results show a qualitatively similar relation between business strategy and a firm's debt ratings, as shown in Panel B of Table 5.

Also, in Panel C of Table 5, we divided the sample into two-groups comparing the period before and after 2009 and re-estimated our primary regression analysis across these sub-sample groupings. The results are robust and indicate that the negative relation between prospector-type strategies and credit ratings is present across the different period categories.

[Insert Table 5 here]

4.2.3 Analysis of change in business strategy

The established relation between business strategy and a firm's credit ratings is more likely to be spurious because there could be a cross-sectional correlation between the levels of many variables without any direct causal relation (Chung et al., 2010). Hence, to further assess the robustness of our main evidence, we also re-estimate Equation (1) using changes in, instead of levels of, both our dependent and independent variables. Due to year-to-year changes, this approach provides an alternative test of causal relations to using levels of these variables (Chung et al., 2010). As we can see in the results provided in Table 6, we continue

to find a significantly negative relationship with a firm's debt ratings when there is a change in business strategy.

[Insert Table 6 here]

4.2.4 Alternative measures of credit ratings

To address the issue that the negative influence of business strategy on credit ratings is sensitive to the choice of rating proxies, we substitute our ordinal values (*S&P22*, *S&P20*, and *S&P7*) with two binary measures: (1) *DEFAULT1* is equal to one (zero) if Altman Z-Score is above 1.81 in year *t*, indicating a high likelihood of bankruptcy in the near future; (2) *DEFAULT2* is equal to one (zero) if the modified Altman Z-score is above 1.1 in year *t*. In Table 7, we find that the coefficient on *BUSTRA* is negative and significant at the 1% level for *DEFAULT1* and 5% for *DEFAULT2*, confirming our preceding findings.

[Insert Table 7 here]

4.3. Additional analyses

4.3.1 The role of information and governance settings on credit ratings

In this subsection, we examine the impact of information and governance settings on the relationship between business strategy and credit ratings.[16] Our expectation is that the impact on credit ratings will be more pronounced for firms, where information environment (Hypothesis *H2*) and monitoring (Hypothesis *H3*) are weaker.

Following extant literature, we measure the information environment using financial analyst coverage (*ANA*) (e.g., Frankel & Li, 2004; Chang et al., 2006) and stock illiquidity measure (*ILLIQ*) (e.g., Welker, 1995; Attig et al., 2006) developed by Amihud (2002). An inverse relation exists between analyst coverage and information asymmetry because increased numbers of analysts following a firm will produce more information (Chang et al.,

[16] We thank the editor for this suggestion.

2006).[17] Also, there is a positive relationship between the illiquidity ratio and information asymmetry as illiquidity is smaller for more liquid stocks (Kale and Loon, 2011).

To test Hypothesis *H2*, we divide our sample into two subgroups (High vs. Low) based on the yearly-median value using *ANA* in year *t-1* and *ILLIQ* in year *t-1*. High (low) analyst following and illiquidity being above (below) the median. Then we re-estimate Equation (1) separately for each subsample (i.e., High vs. Low). Consistent with prior research (Aboody and Lev, 2000; Barth et al., 2001; Cheng and Subramanyam, 2008), we treat low analyst coverage and high illiquidity ratio as indicators for weak information settings.[18] Prospectors encounter inherent business uncertainty due to operational and stock performance variability, resulting in information asymmetry (Cheng and Kesner, 1997; Rajagopalan, 1997). In Table 8, we show that the coefficients on *BUSTRA* are negative for both samples (i.e., *LowANA* vs. *HighANA* and *HighILLIQ vs. LowILLIQ*). However, coefficients are significant (at the 1% level) and notably larger in magnitude for firms in the *LowANA* (Panel A) and *HighILLIQ* (Panel B) samples. The results imply that the effect of business strategy on credit ratings is more than for firms where information environments are weaker, lending strong support to Hypothesis *H2*. A study by Zhang (2021) finds that the stock prices of innovative firms are less informative than that of defender firms.

[Insert Table 8 here]

For monitoring, we consider four measures covering both the role of internal and external governance, including the average percentage of shares outstanding held by institutional investors (*IO*) (e.g., Ashbaugh-Skaife et al., 2006), the percentage of independent directors on

[17] The data for financial analysist coverage comes from I/B/E/S database.
[18] Low analyst coverage (*LowANA*) indicates less public scrutiny and coverage, and hence more information asymmetry, whilst high illiquidity (*HighILLIQ*) results from difficulties in determining price discovery of intangible assets, such as prospector firms' growth opportunities (Smith Jr and Watts, 1992; Gaver and Gaver, 1993).

the board (*BI*)[19], board size (*BS*) (Yermack, 1996), and the presence of anti-takeover provisions (*TOIND*) (Bebchuk et al., 2009).[20] For each fiscal year, we sort the firms into two groups (High vs. Low) based on whether each measure is above (below) the median value of each measure in year t-1. In Table 9 (Panels A to D), we regress S&P debt ratings on corporate business strategy and controls conditional on these alternative corporate governance measures.

The results in Table 9 show that the coefficients on *BUSTRA* are negative and significant across the four subsamples. However, coefficients are strongly significant (at the 1% level (Panel A) and 5% level (Panel B)) and larger in magnitude for firms in the *LowIO* (Panel A) and *LowBI* (Panel B) samples. The results suggest that firms with low institutional ownership and weaker board independence have a more substantial effect of business strategy on credit ratings, lending strong support to Hypothesis *H3.* Specifically, we find that low institutional ownership and weaker board independence result in lower credit ratings and thus higher costs of debt.

In Table 9 (Panels C and D), our evidence suggests that the effect of business strategy on credit ratings is greater for firms subject to weaker corporate governance mechanisms (lower anti-takeover provisions), lending strong support to Hypothesis *H3*. However, the result for the board size variable is not consistent with our expectation. In Table 9 (Panel C), the effect of business strategy on credit ratings is significant for both larger and smaller boards with a greater effect when board size is larger. Larger boards have been associated with weaker governance and performance (Yermack, 1996) but the effect can be positive in more complex companies (Coles, et al., 2008).

[Insert Table 9 here]

[19] The data for board independence is from BoardEx.
[20] We thank the anonymous reviewer for the insightful suggestions.

4.3.2 The role of policy uncertainty on credit ratings

In this subsection, we examine the role of policy uncertainty in explaining the effect of business strategy on credit ratings. As in Hypothesis *H4*, we predict that the relationship between business strategy and credit ratings is stronger during the period of high policy uncertainty. Governments can shift direction or vary their strategy for managing the macro environments to respond to changes in the economic environments as circumstances dictate. In the case of national elections (or less democratic changes in control), a new government is likely to pursue policies that differ from its predecessors. In extreme cases, such policies might be diametrically opposed to those of the former regime. Policy uncertainty affects a variety of macroeconomic factors, including interest rates, inflation and exchange rates, leading to unexpected changes in monetary and fiscal policy (Bordo et al., 2016; Ng et al., 2020; Danisman et al., 2021; Ozili, 2021). Also, there is evidence of an adverse effect of policy uncertainty on stock performance as well as innovation (Jin et al., 2019; Lou et al., 2021). To quantify policy uncertainty, we consider two measures - the index of economic policy uncertainty (*EPU*) (Baker et al., 2016) and the U.S. presidential election (*ELECT*).

To test Hypothesis *H4,* we divide our sample into two subgroups (High vs. Low) based on the yearly-median value using *EPU* in year *t*-1. For a second measure of policy uncertainty, we examine the relationship between business strategy and credit ratings around U.S. presidential elections. *ELECT* (*NON-ELECT*) is a dummy measure equal to one (zero) if the U.S. holds a presidential election in year *t*-1. We repeat panel Equation (1) separately for each subsample (i.e., High vs. Low). In Panel A (Table 10), we find that the coefficients on *BUSTRA* are negative (i.e., *HighEPU* vs. *LowEPU*) for both samples. However, coefficients are significant (at the 1% level) and larger in absolute terms for firms in the *HighEPU* sample. Our results add to the body of literature on the impact of policy uncertainty on the risk associated with various business strategies (Al-Thaqeb and Algharabali, 2019; Kaviani et

al., 2020). In Table 10 (Panel B), we observe that the coefficients on *BUSTRA* are significantly negative for both samples (i.e., *ELECT* vs. *NON-ELECT*) during the incidence of presidential elections in the U.S. However, we find no significant difference across election and non-election periods. This could simply be attributable to the fact that policy uncertainty exists in both election and non-election periods. Alternatively, policy uncertainty may not be serious, particularly, during election periods, given that election outcomes may not be uncertain, or policies may be essentially identical. To summarize, as in Hypothesis *H4*, our results suggest that the relationship between business strategy and credit ratings is stronger only when economic policy uncertainty is high.

[Insert Table 10 here]

4.3.3 The cost of debt and credit ratings of prospector firms

So far, our results have established a significant negative relation between the prospector strategy and credit ratings. Given that credit ratings are a primary determinant of capital costs, it would be consistent with the role of credit ratings to expect that prospector firms' borrowing costs will be higher (Graham and Harvey, 2001; Kisgen and Strahan, 2010). As our final check, we examine whether the cost of debt is higher for prospector firms with low credit ratings than for high ratings (Hypothesis *H5*). The proxy we use for measuring the cost of debt is the interest rate spread, i.e., the difference between the interest rate on debt and average annual prime rate in year *t* (*CoD*). In Table 11, we find a significantly positive effect of *BUSTRA* on *CoD* for high vs. low debt ratings. However, the magnitude of coefficients is considerably larger, strongly significant (at the 1% level), and exhibits a larger explanatory power for firms in the *LowRATINGS* sample than the firms in the *HighRATINGS* sample. Overall, our results provide strong empirical support to Hypothesis *H5*.

[Insert Table 11 here]

5. Conclusion

In this study, we empirically investigate the effect of strategic archetypes, i.e., the business strategies followed by firms as measured according to the typology proposed by Miles and Snow (1978, 2003), on credit ratings and the cost of debt. Using a comprehensive sample of 24,421 firm-years for U.S. non-financial firms over the period 1981–2016, we find a significantly negative relation between business strategy and a firm's credit ratings, suggesting that credit ratings for prospector-type firms are lower than for defenders and analyzers. Prospectors would thus be, on average, considered to have a lower level of creditworthiness and would be required to pay higher prices to raise debt. Our evidence remains unchanged after controlling for firm fixed effects, alternative model approaches, PSM approach, and alternative measures.

In additional analyses, we examine whether the negative effect of business strategy on credit ratings varies across information environment and corporate governance settings and during high periods of policy uncertainty. First, we show that this effect is accentuated in firms, where analysts (illiquidity estimate) are lower (higher). That is, prospector firms would have lower ratings still and be subject to higher costs of capital when policy uncertainty is higher. Similarly, we find that firms with lower institutional ownership and weaker board independence have a stronger effect of business strategy on credit ratings, i.e., prospector firms receive lower ratings, and the cost of capital is higher when institutional ownership is lower and boards are less independent. We also observe lower credit ratings, and hence higher costs of capital, for prospector-type firms only when economic policy uncertainty is high. Further, we test the relation between prospector strategy and a firm's cost of debt, showing that prospector-type firms with weak credit ratings have a higher cost of debt.

The conclusions of this research have significant consequences for investors and policy-setting bodies. Our empirical evidence confirms the relevance of information asymmetry and

governance as potential predictors of credit ratings, stressing the need for establishing transparent information environments and more stringent governance systems. Thus, while making investment and policy-related decisions, investors and policymakers should consider the settings of information asymmetry and the governance of prospector-type firms.

Whilst our study provides robust evidence, our results are still subject to limitations. First, we limit our sample to 2016, and hence, the findings may be influenced by exogenous events (if any) that occur after this point in the U.S. market. Second, our inferences are based on the association between prospector strategy and credit ratings rather than establishing causality. Despite our efforts to run various analyses for endogeneity issues, endogeneity is always a challenge in empirical research. With the rapid development of financial technology (Fintech), future research in this area might seek to examine how companies following different strategic archetypes engage with Fintech and how successful such engagement is. That may be reflected in their credit ratings and the cost of debt.[21]

[21] We thank the associate editor for this suggestion.

References

Abad, P., Ferreras, R. & Robles, M.D. 2020. Information opacity and corporate bond returns: The dynamics of split ratings. *Journal of International Financial Markets, Institutions and Money*, 68, 101239.

Aboody, D. & Lev, B. 2000. Information asymmetry, R&D, and insider gains. *The Journal of Finance*, 55, 2747-2766.

Al-Thaqeb, S. A. & Algharabali, B. G. 2019. Economic policy uncertainty: A literature review. *The Journal of Economic Asymmetries*, 20, e00133.

Alali, F., Anandarajan, A. & Jiang, W. 2012. The effect of corporate governance on firm's credit ratings: further evidence using governance score in the United States. *Accounting & Finance*, 52, 291-312.

Amihud Y. 2002. Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets*, 5(1), 31–56.

Amiri-Moghadam, S., Javadi, S., & Rastad, M. 2021. The Impact of stronger shareholder control on bondholders. *Journal of Financial and Quantitative Analysis*, 56(4), 1259-1295.

An, H. H. & Chan, K. C. 2008. Credit ratings and IPO pricing. *Journal of Corporate Finance*, 14, 584-595.

Anderson, E. 1988. Strategic implications of Darwinian economics for selling efficiency and choice of integrated or independent sales forces. *Management Science*, 34, 599-618.

Ashbaugh-Skaife H. Collins D.W. & Lafond R. 2006. The effects of corporate governance on firms' credit ratings. *Journal of Accounting and Economics*, 42(1), 203–243.

Attig N., Fong W.M., Gadhoum Y., Lang L.H. 2006. Effects of large shareholding on information asymmetry and stock liquidity. *Journal of Banking & Finance*, 30(10), 2875–2892.

Attig, N., Driss, H. & Ghoul, S.E. 2021. Credit ratings quality in uncertain times. *Journal of International Financial Markets, Institutions and Mone*y, 75, 101449.

Avramov, D., Chordia, T., Jostova, G. & Philipov, A. 2007. Momentum and credit rating. *Journal of Finance*, 62, 2503-2520.

Baker, S. R., Bloom, N. & Davis, S. J. 2016. Measuring economic policy uncertainty. *The Quarterly Journal of Economics*, 131, 1593-1636.

Barth, M. E., Kasznik, R. & Mcnichols, M. F. 2001. Analyst coverage and intangible assets. *Journal of Accounting Research*, 39, 1-34.

Bebchuk, L., Cohen, A. and Ferrell, A. 2009. What matters in corporate governance?. *Review of Financial Studies*, 22(2), 783-827.

Becker, B. & Milbourn, T. 2011. How did increased competition affect credit ratings? *Journal of Financial Economics*, 101, 493-514.

Bentley-Goode, K. A., Newton, N. J. & Thompson, A. M. 2017. Business strategy, internal control over financial reporting, and audit reporting quality. *Auditing: A Journal of Practice & Theory*, 36, 49-69.

Bentley, K. A., Omer, T. C. & Sharp, N. Y. 2013. Business strategy, financial reporting irregularities, and audit effort. *Contemporary Accounting Research*, 30, 780-817.

Bhandari, A. & Golden, J. 2021. CEO political preference and credit ratings. *Journal of Corporate Finance*, 68, 101909.

Bolton, P., Freixas, X. & Shapiro, J. 2012. The credit ratings game. *The Journal of Finance*, 67, 85-111.

Bongaerts, D., Cremers, K. M. & Goetzmann, W. N. 2012. Tiebreaker: Certification and multiple credit ratings. *The Journal of Finance*, 67, 113-152.

Bonsall, S. B., Green, J. R. & Muller III, K. A. 2018. Are credit ratings more rigorous for widely covered firms? *The Accounting Review*, 93, 61-94.

Bonsall, S. B., Holzman, E. R., & Miller, B. P. 2017. Managerial ability and credit risk assessment. *Management Science,* 63(5), 1425-1449.

Bordo, M. D., Duca, J. V. & Koch, C. 2016. Economic policy uncertainty and the credit channel: Aggregate and bank bank-level US evidence over several decades. *Journal of Financial Stability*, 26, 90-106.

Cantor, R. & Packer, F. 1997. Differences of opinion and selection bias in the credit rating industry. *Journal of Banking & Finance*, 21, 1395-1417.

Chambers, D., Jennings, R. & Thompson, R. B. 2002. Excess returns to R&D-intensive firms. *Review of Accounting Studies*, 7, 133-158.

Chang X., Dasgupta S., Hilary G. 2006. Analyst coverage and financing decisions. *The Journal of Finance*, 61(6), 3009–3048.

Chen, C. X., Lu, H. & Sougiannis, T. 2012. The agency problem, corporate governance, and the asymmetrical behavior of selling, general, and administrative costs. *Contemporary Accounting Research*, 29, 252-282.

Chen, G.-Z. & Keung, E. C. 2019. The impact of business strategy on insider trading profitability. *Pacific-Basin Finance Journal*, 55, 270-282.

Chen, Y., Eshleman, J. D. & Soileau, J. S. 2017. Business strategy and auditor reporting. *Auditing: A Journal of Practice & Theory*, 36, 63-86.

Cheng, J. L. & Kesner, I. F. 1997. Organizational slack and response to environmental shifts: The impact of resource allocation patterns. *Journal of Management*, 23, 1-18.

Cheng, M. & Subramanyam, K. 2008. Analyst following and credit ratings. *Contemporary Accounting Research*, 25, 1007-1044.

Chung, Elder, J., & Kim, J. C. 2010. Corporate governance and liquidity. *Journal of Financial and Quantitative Analysis*, 45(2), 265–291.

Cohen, L., Diether, K. & Malloy, C. 2013. Misvaluing innovation. *The Review of Financial Studies*, 26, 635-666.

Coles, J.L., Daniel, N.D. & Naveen, L.. 2008. Boards: Does One Size Fit All?. *Journal of Financial Economics*, 87, 329-356.

Cornaggia, K. J., Krishnan, G. V. & WANG, C. 2017. Managerial ability and credit ratings. *Contemporary Accounting Research*, 34, 2094-2122.

Creighton, A., Gower, L. & Richards, A. J. 2007. The impact of rating changes in Australian financial markets. *Pacific-Basin Finance Journal*, 15, 1-17.

Czarnitzki, D. & Kraft, K. 2004. Innovation indicators and corporate credit ratings: evidence from German firms. *Economics Letters*, 82, 377-384.

Danisman, G. O., Demir, E. & Ozili, P. 2021. Loan loss provisioning of US banks: Economic policy uncertainty and discretionary behavior. *International Review of Economics & Finance*, 71, 923-935.

Dehaan, E. 2017. The financial crisis and corporate credit ratings. *The Accounting Review*, 92, 161-189.

Dong, X., Cui, Y. & Gao, J. 2021. Strategic deviance and auditor selection. *China Journal of Accounting Studies*, In-press.

Faleye, O., Hoitash, R. & Hoitash, U. 2011. The costs of intense board monitoring. *Journal of Financial Economics*, 101, 160-181.

Faulkender, M. & Petersen, M. A. 2006. Does the source of capital affect capital structure? *The Review of Financial Studies*, 19, 45-79.

Fischer, P. E. & Verrecchia, R. E. 1997. The effect of limited liability on the market response to disclosure. *Contemporary Accounting Research*, 14, 515-541.

Fitch Ratings 2004. Evaluating corporate governance: The bondholders' perspective. Credit policy special report, New York.

Fitch Ratings 2020. Corporate Rating Criteria. Fitch Ratings, Inc.

Frankel, R., & Li, X. 2004. Characteristics of a firm's information environment and the information asymmetry between insiders and outsiders. *Journal of Accounting and Economics*, 37(2), 229–259.

Frost, C. A. 2007. Credit rating agencies in capital markets: A review of research evidence on selected criticisms of the agencies. *Journal of Accounting, Auditing & Finance*, 22, 469-492.

Gaver, J. J. & Gaver, K. M. 1993. Additional evidence on the association between the investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Accounting and Economics*, 16, 125-160.

Ghosh, D. & Olsen, L. 2009. Environmental uncertainty and managers' use of discretionary accruals. *Accounting, Organizations and Society*, 34, 188-205.

Graham, J.R. & Harvey, C.R. 2001. The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, 60, 187-243.

Gray, S., Mirkovic, A. & Ragunathan, V. 2006. The determinants of credit ratings: Australian evidence. *Australian Journal of Management*, 31, 333-354.

Griffin, P. A., Hong, H. A. & Ryou, J. W. 2018. Corporate innovative efficiency: Evidence of effects on credit ratings. *Journal of Corporate Finance*, 51, 352-373.

Guindy, M.A. (2021). Corporate Twitter use and cost of equity capital. *Journal of Corporate Finance*, 68, 101926.

Habib, A. & Hasan, M. M. 2017. Business strategy, overvalued equities, and stock price crash risk. *Research in International Business and Finance*, 39, 389-405.

Habib, A. & Hasan, M. M. 2021. Business strategy and labor investment efficiency. *International Review of Finance*, 21, 58-96.

Ham, C. & Koharki, K. 2016. The association between corporate general counsel and firm credit risk. *Journal of Accounting and Economics*, 61(2-3), 274-293.

Hambrick, D. C. 1983. Some tests of the effectiveness and functional attributes of Miles and Snow's strategic types. *Academy of Management Journal*, 26, 5-26.

Hand, J. R., Holthausen, R. W. & Leftwich, R. W. 1992. The effect of bond rating agency announcements on bond and stock prices. *The Journal of Finance*, 47, 733-752.

Ho, Y. K., Xu, Z. & Yap, C. M. 2004. R&D investment and systematic risk. *Accounting & Finance*, 44, 393-418.

Hoang, V.A., Dang, M., Nguyen, N.V., Nguyen, N.T. and Henry, D. 2021. What drives target status decision in emerging markets acquisitions? *Journal of Economics and Development*, 23(2), 203-218.

Hsu, P. H., Moore, J. A. & Neubaum, D. O. 2018. Tax avoidance, financial experts on the audit committee, and business strategy. *Journal of Business Finance & Accounting*, 45, 1293-1321.

Ittner, C. D., Larcker, D. F. & Rajan, M. V. 1997. The choice of performance measures in annual bonus contracts. *Accounting Review*, 231-255.

Jensen, M. C. & Meckling, W. H. 1976. Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics*, 3, 305-360.

Jin, X., Chen, Z. & Yang, X. 2019. Economic policy uncertainty and stock price crash risk. *Accounting & Finance*, 58, 1291-1318.

Kale JR, Loon YC (2011) Product market power and stock market liquidity. *Journal of Financial Markets*, 14(2): 376–410.

Kaviani, M. S., Kryzanowski, L., Maleki, H. & Savor, P. 2020. Policy uncertainty and corporate credit spreads. *Journal of Financial Economics*, 138, 838-865.

Kim, S., Kraft, P., & Ryan, S. G. 2013. Financial statement comparability and credit risk. *Review of Accounting Studies*, 18(3), 783-823.

Kisgen, D. J. & Strahan, P. E. 2010. Do Regulations Based on Credit Ratings Affect a Firm's Cost of Capital? *Review of Financial Studies*, 23, 4324-4347.

Kong, X., Jiang, F., & Zhu, L. (2022). Business strategy, corporate social responsibility, and within-firm pay gap. *Economic Modelling*, 106, 105703.

Kothari, S., Laguerre, T. E. & Leone, A. J. 2002. Capitalization versus expensing: Evidence on the uncertainty of future earnings from capital expenditures versus R&D outlays. *Review of Accounting Studies*, 7, 355-382.

Kothari, S. P., Shu, S. & Wysocki, P. D. 2009. Do managers withhold bad news? *Journal of Accounting Research*, 47, 241-276.

Langfield-Smith, K. 1997. Management control systems and strategy: a critical review. *Accounting, Organizations and Society*, 22, 207-232.

Lim, E. K., Chalmers, K. & Hanlon, D. 2018. The influence of business strategy on annual report readability. *Journal of Accounting and Public Policy*, 37, 65-81.

Liu, C. 2018. Are women greener? Corporate gender diversity and environmental violations. *Journal of Corporate Finance*, 52, 118-142.

Liu, Y., Wei, Z., & Xie, F. 2014. Do women directors improve firm performance in China? *Journal of Corporate Finance*, 28, 169-184.

Lo, K., Ramos, F. & Rogo, R. 2017. Earnings management and annual report readability. *Journal of Accounting and Economics*, 63, 1-25.

Lou, Z., Chen, S., Yin, W., Zhang, C. & Yu, X. 2022. Economic policy uncertainty and firm innovation: Evidence from a risk-taking perspective. *International Review of Economics & Finance*, 77, 78-96.

Ma, Z., Ruan, L., Wang, D., & Zhang, H. 2021. Generalist CEOs and Credit Ratings. *Contemporary Accounting Research*, 38(2), 1009-1036.

Manso, G. 2013. Feedback effects of credit ratings. *Journal of Financial Economics*, 109, 535-548.

March, J. G. 1991. Exploration and exploitation in organizational learning. *Organization Science*, 2, 71-87.

Mathis, J., Mcandrews, J. & Rochet, J.-C. 2009. Rating the raters: Are reputation concerns powerful enough to discipline rating agencies? *Journal of Monetary Economics*, 56, 657-674.

Matthies, A. B. 2013. Empirical research on corporate credit-ratings: a literature review. SFB 649 Discussion Paper, No. 2013-003.

Mayers, D. & Smith JR, C. W. 1988. Ownership structure across lines of property-casualty insurance. *The Journal of Law and Economics*, 31, 351-378.

Miles, R. E. & Snow, C. C. 2003. Organizational Strategy, Structure, and Process, Stanford University Press.

Miles, R. E., Snow, C. C., Meyer, A. D. & Coleman JR, H. J. 1978. Organizational strategy, structure, and process. *Academy of Management Review*, 3, 546-562.

Ng, J., Saffar, W. & Zhang, J. J. 2020. Policy uncertainty and loan loss provisions in the banking industry. *Review of Accounting Studies*, 1-52.

Opp, C. C., Opp, M. M. & Harris, M. 2013. Rating agencies in the face of regulation. *Journal of Financial Economics*, 108, 46-61.

Ozili, P. K. 2021. Economic policy uncertainty: are there regional and country correlations? *International Review of Applied Economics*, 35 (5), 714-728.

Pinches, G. E. & Singleton, J. C. 1978. The adjustment of stock prices to bond rating changes. *The Journal of Finance*, 33, 29-44.

Plummer, C. E. & Tse, S. Y. 1999. The effect of limited liability on the informativeness of earnings: Evidence from the stock and bond markets. *Contemporary Accounting Research*, 16, 541-574.

Poon, W. P. & Chan, K. C. 2008. An empirical examination of the informational content of credit ratings in China. *Journal of Business Research*, 61, 790-797.

Porter, M. E. 1980. Competitive Strategy: Techniques for Analyzing Industries and Competitors New York: The Free Press, Harvard Business Publishing, USA.

Rajagopalan, N. 1997. Strategic orientations, incentive plan adoptions, and firm performance: Evidence from electric utility firms. *Strategic Management Journal*, 18, 761-785.

Rajagopalan, N. & Finkelstein, S. 1992. Effects of strategic orientation and environmental change on senior management reward systems. *Strategic Management Journal*, 13, 127-141.

Snow, C.C. & Hrebiniak, L.G. 1980. Strategy, distinctive competence, and organizational performance. *Administrative Science Quarterly*, 25(2), 317-336.

Smith JR, C. W. & Watts, R. L. 1992. The investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Financial Economics*, 32, 263-292.

Standard & Poor’s 2013. Key Credit Factors For The Technology Software And Services Industry. Standard & Poor's Financial Services LLC.

Standard & Poor’s 2019. Guide to Credit Rating Essentials: What are credit ratings, and how do they work? : Standard & Poor’s Financial Services LLC.

Sufi, A. 2009. The real effects of debt certification: Evidence from the introduction of bank loan ratings. *Review of Financial Studies*, 22, 1659-1691.

Tang, T. T. 2009. Information asymmetry and firms’ credit market access: Evidence from Moody's credit rating format refinement. *Journal of Financial Economics*, 93, 325-351.

Treacy, M. & Wiersema, F. 1995. How market leaders keep their edge. *Fortune*, 131, 52-57.

Varadarajan, P. R. & Clark, T. 1994. Delineating the scope of corporate, business, and marketing strategy. *Journal of Business Research*, 31, 93-105.

Walker Jr, O. C. & Ruekert, R. W. 1987. Marketing's role in the implementation of business strategies: a critical review and conceptual framework. *Journal of Marketing*, 51, 15-33.

Welker, M. 1995, Disclosure policy, information asymmetry, and liquidity in equity markets. *Contemporary Accounting Research*, 11, 801-827.

White, L. J. 2013. Credit rating agencies: An overview. *Annual Review of Financial Economics*, 5, 93-122.

Xie, B., Davidson III, W. N. & Dadalt, P. J. 2003. Earnings management and corporate governance: the role of the board and the audit committee. *Journal of Corporate Finance*, 9, 295-316.

Yi, H. C. & Mullineaux, D. J. 2006. The informational role of bank loan ratings. *Journal of Financial Research*, 29, 481-501.

Yermack, D. 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40(2), 185-211.

Zhang, R. 2021. Business strategy, stock price informativeness, and analyst coverage efficiency. *Review of Financial Economics*, 39, 27-50.

Zhang, X.F. 2006. Information uncertainty and stock returns. *Journal of Finance*, 61, 105-136.

Table 1. Cross-sectional summary statistics

Panel A of this table provides a comparison of mean values of controls across S&P debt rating scales. Panel B reports a comparison of mean and median values of S&P debt ratings across three types of business strategy. To measure S&P debt ratings, we translate letters assigned to S&P debt ratings into three ordinal scales: the S&P 22-point scale (S&P22) takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1); the S&P 20-point scale (S&P20) takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0); and the S&P 7-point scale (S&P7) takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1). We assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer) to capture business strategy. See, Appendix 1 for a detailed definition of variables.

Panel A: Mean comparison of controls by S&P debt ratings

Scale	Sample	*SIZE*	*LEV*	*NI/TA*	*MB*	*LOSS*	*TANG*	*INTCOV*	*SDRET*	*IO*	*LNAGE*	*CASVOL*	*DIV*	*CEOWN*
AAA	203	9.7816	0.1058	0.1034	5.6503	0.0197	0.7168	30.5222	0.0593	0.5208	2.2819	0.0113	0.0550	0.0259
AA+	95	8.3251	0.1043	0.0945	4.1394	0.0211	0.6419	40.2279	0.0746	0.5481	2.1249	0.0138	0.0468	0.0221
AA	486	8.9643	0.1397	0.0784	5.3239	0.0247	0.7594	18.7258	0.0662	0.5075	2.0092	0.0109	0.0504	0.0237
AA-	499	8.6003	0.1472	0.0747	5.3134	0.0301	0.7782	16.6126	0.0640	0.5197	2.3781	0.0104	0.0484	0.0228
A+	984	8.4693	0.1479	0.0724	5.2987	0.0274	0.7228	17.8029	0.0695	0.5568	2.4503	0.0121	0.0477	0.0224
A	1,792	8.4441	0.1550	0.0624	5.1388	0.0474	0.6981	14.0896	0.0726	0.5697	2.7043	0.0138	0.0475	0.0224
A-	1,517	8.3733	0.1622	0.0538	4.9037	0.0560	0.7223	12.8071	0.0751	0.5928	2.6711	0.0160	0.0471	0.0222
BBB+	1,850	8.3950	0.1647	0.0511	4.9048	0.0822	0.7294	11.3265	0.0800	0.6413	2.8411	0.0167	0.0472	0.0222
BBB	2,561	8.2809	0.1677	0.0436	5.0378	0.1000	0.7192	10.2335	0.0845	0.6702	2.8303	0.0184	0.0466	0.0219
BBB-	1,957	8.1495	0.1668	0.0373	4.2900	0.1334	0.6274	10.1388	0.0937	0.6964	2.7680	0.0197	0.0459	0.0216
BB+	1,487	7.7668	0.1801	0.0382	4.4692	0.1553	0.6118	9.8368	0.1041	0.6891	2.6214	0.0305	0.0437	0.0206
BB	2,176	7.4877	0.2023	0.0270	4.3957	0.1967	0.5864	7.5179	0.1131	0.6792	2.4540	0.0285	0.0421	0.0198
BB-	2,818	7.1284	0.2245	0.0142	4.8118	0.2757	0.5821	6.7523	0.1276	0.6610	2.2985	0.0330	0.0401	0.0189
B+	2,834	6.6599	0.2599	-0.0046	5.0104	0.3881	0.5884	4.0885	0.1443	0.5529	2.0276	0.0430	0.0375	0.0176
B	1,645	6.7816	0.2849	-0.0463	4.7072	0.5793	0.6814	2.6912	0.1707	0.5397	2.3280	0.0509	0.0382	0.0180
B-	832	6.6569	0.3001	-0.0939	4.2974	0.7380	0.6725	1.4952	0.1988	0.5094	2.2012	0.0551	0.0375	0.0176
CCC+	303	6.5801	0.3758	-0.1409	2.0198	0.8020	0.7331	0.6526	0.2186	0.4396	1.9469	0.0758	0.0370	0.0174
CCC	138	6.3032	0.3976	-0.1852	1.6713	0.8696	0.7918	0.2567	0.2222	0.3168	1.8284	0.0792	0.0355	0.0167
CCC-	60	5.8790	0.4384	-0.1886	2.5498	0.8667	0.9228	0.2980	0.2402	0.2482	1.3040	0.1112	0.0331	0.0156
CC	43	6.6439	0.4424	-0.1998	-0.3511	0.8372	0.8109	0.8304	0.2863	0.3138	1.7489	0.0629	0.0374	0.0176
C	1	5.5088	0.3527	-0.1916	10.3207	1.0000	0.3118	0.6942	0.1193	0.3424	0.6931	0.0704	0.0310	0.0146
D	140	6.4611	0.3108	-0.1983	-2.7032	0.8281	0.8946	1.8462	0.2495	0.2614	1.6155	0.0524	0.0364	0.0171

Panel B: Mean and median comparison of S&P debt ratings by types of business strategy

	Prospector firms (1)		Analyzer firms (2)		Defender firms (3)	
	Mean	Median	Mean	Median	Mean	Median
S&P22	7.90	8.00	11.12	11.00	12.76	13.00
S&P20	5.90	6.00	9.12	9.00	10.76	11.00
S&P7	2.00	2.00	3.38	3.00	3.78	4.00

Table 2. Descriptive Statistics

This table reports the descriptive statistics for the baseline sample. To measure S&P debt ratings, we translate letters assigned to S&P debt ratings into three ordinal scales: The S&P 22-point scale (*S&P22*) takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1); the S&P 20-point scale (*S&P20*) takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0); and the S&P 7-point scale (*S&P7*) takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1). To capture business strategy (*BUSTRA*), we assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer). *CONTROLS* include firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), operating loss (*LOSS*), tangibility (*TANG*), interest coverage (*INTCOV*), stock return volatility (*SDRET*), institutional ownership (*IO*), firm age (*LNAGE*), cash flow volatility (*CASVOL*), dividend payment (*DIV*), and CEO ownership (*CEOWN*). See, Appendix 1 for a detailed definition of variables.

Variable	Sample	Mean	Median	Min	P25	P75	Max	SD
S&P22	24,421	12.4946	12.0000	5.0000	10.0000	15.0000	21.0000	3.6356
S&P20	24,421	10.4946	10.0000	3.0000	8.0000	13.0000	19.0000	3.6356
S&P7	24,421	3.4964	3.0000	1.0000	3.0000	4.0000	6.0000	1.2329
BUSTRA	24,421	0.6336	1.0000	0.0000	0.0000	1.0000	1.0000	0.4818
SIZE	24,421	7.7064	7.6378	4.5042	6.6915	8.6577	11.3084	1.4509
LEV	24,421	0.2031	0.1852	0.0083	0.1271	0.2527	0.6936	0.1161
NI/TA	24,421	0.0213	0.0360	-0.4877	0.0045	0.0659	0.2074	0.0960
MB	24,421	1.7105	1.3980	0.4392	1.0555	1.9741	2.3516	1.4908
LOSS	24,421	0.2281	0.0000	0.0000	0.0000	0.0000	1.0000	0.4196
TANG	24,421	0.6621	0.6112	0.0506	0.3286	0.9529	1.9229	0.4074
INTCOV	24,421	9.1878	5.1598	-4.1419	2.8279	9.7898	102.2302	14.2941
SDRET	24,421	0.1113	0.0935	0.0291	0.0654	0.1375	0.3946	0.0669
IO	24,421	0.6095	0.6408	0.0567	0.4375	0.8015	1.0000	0.2422
LNAGE	24,421	3.1814	3.2605	1.0119	2.5656	3.8840	4.2671	0.8007
CASVOL	24,421	0.0282	0.0151	0.0001	0.0075	0.0298	1.7037	0.0585
DIV	24,421	0.0703	0.0000	0.0000	0.0000	0.1255	0.3078	0.1105
CEOWN	24,421	0.0331	0.0028	0.0000	0.0138	0.1931	0.6902	0.0437

Table 3. Baseline evidence: strategic archetypes and credit ratings

This table reports panel regression results of S&P debt ratings on corporate business strategy and controls as in Equation (1):

$$RATINGS_{i,t} = \alpha + \beta BUSTRA_{i,t-1} + CONTROLS_{i,t-1} + \varepsilon_{i,t} \qquad (1)$$

The dependent variable of interest, $RATINGS_{i,t}$, indicates the numeric translation of S&P debt ratings (either *S&P22*, *S&P20*, or *S&P7*). In Column 1, *S&P22* takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1). In Column 2, *S&P20* takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0). In Column 3, *S&P7* takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1). To capture business strategy (*BUSTRA*), we assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer). *CONTROLS* include firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), operating loss (*LOSS*), tangibility (*TANG*), interest coverage (*INTCOV*), stock return volatility (*SDRET*), institutional ownership (*IO*), firm age (*LNAGE*), cash flow volatility (*CASVOL*), dividend payment (*DIV*), and CEO ownership (*CEOWN*). Unless otherwise specified, all specifications include industry and year fixed effects (FE). The *t*-statistics in parentheses, based on standard errors, are adjusted for heteroscedasticity while clustered at the firm level. We winsorize continuous (except binary) variables at the 1% and 99% levels. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively. See, Appendix 1, for a detailed definition of variables.

Dep. Variable:	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)
BUSTRA	**-0.2258**	**-0.2392**	**-0.0738**
	(-6.98)* **	**(-7.19)*** **	**(-6.44)*** **
SIZE	0.9827	0.9876	0.3257
	(74.05)***	(71.79)***	(70.52)***
LEV	-3.8986	-3.9553	-1.3715
	(-23.87)***	(-21.88)***	(-23.84)***
NI/TA	2.7900	3.3514	0.8325
	(11.45)***	(12.51)***	(9.80)***
MB	-0.0020	-0.0014	-0.0008
	(-1.43)	(-0.94)	(-1.60)
LOSS	-0.8260	-0.7807	-0.2868
	(-17.69)***	(-16.06)***	(-17.27)***
TANG	0.7081	0.6767	0.2247
	(14.18)***	(13.02)***	(12.85)***
INTCOV	0.0410	0.0408	0.0131
	(26.57)***	(25.82)***	(25.83)***
SDRET	-14.6748	-15.4050	-4.8861
	(-47.44)***	(-45.49)***	(-44.51)***
IO	0.2346	0.1564	0.0255
	(2.92)***	(1.87)*	(0.90)
LNAGE	0.2441	0.2345	0.0773
	(14.76)***	(13.88)***	(13.04)***
CASVOL	-2.2173	-2.2332	-0.8229
	(-6.04)***	(-5.95)***	(-6.64)***
DIV	-0.0112	-0.0116	-0.0104
	(-1.23)	(-1.30)	(-1.17)
CEOWN	0.7397	0.7368	0.3014
	(1.82)*	(1.74)*	(2.28)**
Constant	6.6473	4.7061	1.8214
	(18.15)***	(12.31)***	(15.84)***
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Adj R^2	0.6777	0.6750	0.6480
Nobs	24,421	24,421	24,421

Table 4. Robustness checks: Firm fixed effects and lagged specification

This table reports paneled regression results of S&P debt ratings on corporate business strategy and controls using firm fixed effects (Columns 1–3) and lagged specification (Columns 4–6). To measure S&P debt ratings, we translate letters assigned to S&P debt ratings into three ordinal scales: The S&P 22-point scale (*S&P22*) takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1); the S&P 20-point scale (*S&P20*) takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0); and the S&P 7-point scale (*S&P7*) takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1). To capture business strategy (*BUSTRA*), we assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer). *CONTROLS* include firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), operating loss (*LOSS*), tangibility (*TANG*), interest coverage (*INTCOV*), stock return volatility (*SDRET*), institutional ownership (*IO*), firm age (*LNAGE*), cash flow volatility (*CASVOL*), dividend payment (*DIV*), and CEO ownership (*CEOWN*). Unless otherwise specified, all specifications include industry and year fixed effects (FE). The *t*-statistics in parentheses, based on standard errors, are adjusted for heteroscedasticity while clustered at the firm level. We winsorize continuous (except binary) variables at the 1% and 99% levels. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively. See, Appendix 1, for a detailed definition of variables.

Dep. Variable:	Firm fixed effects (FFE)			A five-year lagged of *BUSTRA*		
	S&P22	*S&P20*	*S&P7*	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**-0.0763**	**-0.0879**	**-0.0228**	**-0.2356**	**-0.2479**	**-0.0742**
	(-2.81)* **	**(-3.09)*** **	**(-2.23)** **	**(-7.00)*** **	**(-7.18)*** **	**(-6.20)*** **
SIZE	1.0602	1.0681	0.358	0.9646	0.9693	0.3192
	(36.49)***	(35.82)***	(33.08)***	(69.22)***	(67.14)***	(65.67)***
LEV	-3.4744	-3.4398	-1.1449	-3.6167	-3.6562	-1.2779
	(-17.51)***	(-14.71)***	(-16.03)***	(-20.90)***	(-19.24)***	(-20.96)***
NI/TA	1.1972	1.6722	0.3510	2.8326	3.3124	0.8554
	(6.50)***	(7.91)***	(5.08)***	(10.85)***	(11.73)***	(9.40)***
MB	-0.0006	-0.0011	-0.0003	-0.0018	-0.0012	-0.0006
	(-0.65)	(-1.04)	(-0.74)	(-1.21)	(-0.77)	(-1.20)
LOSS	-0.3111	-0.2649	-0.1054	-0.8547	-0.8169	-0.2937
	(-9.10)***	(-7.28)***	(-8.08)***	(-17.21)***	(-15.84)***	(-16.61)***
TANG	0.9139	0.8516	0.2961	0.6317	0.6070	0.1980
	(11.34)***	(9.99)***	(9.84)***	(12.07)***	(11.17)***	(10.79)***
INTCOV	0.0217	0.0216	0.0070	0.0422	0.0421	0.0134
	(19.35)***	(18.72)***	(17.38)***	(25.81)***	(25.17)***	(24.99)***
SDRET	-7.0308	-7.6590	-2.3627	-14.8651	-15.6128	-4.9548
	(-28.79)***	(-27.55)***	(-25.90)***	(-45.71)***	(-44.00)***	(-42.79)***
IO	0.9620	1.1901	0.3476	0.3888	0.3111	0.0798
	(9.45)***	(10.65)***	(9.12)***	(4.51)***	(3.46)***	(2.61)***
LNAGE	0.0118	0.0105	0.0065	0.2526	0.2452	0.0803
	(0.69)	(0.60)	(1.01)	(14.52)***	(13.80)***	(12.90)***
CASVOL	-1.058	-1.0891	-0.4524	-2.6283	-2.6630	-0.9642
	(-4.71)***	(-4.55)***	(-5.65)***	(-6.68)***	(-6.60)***	(-7.15)***
DIV	-0.0007	-0.0008	-0.0010	-0.0012	-0.0015	-0.0004
	(-0.46)	(-0.60)	(-0.69)	(-1.62)	(-1.61)	(-1.58)
CEOWN	0.4643	0.4306	0.1787	0.7702	0.7881	0.3342
	(1.56)	(1.51)	(1.92)*	(2.09)**	(2.03)**	(2.46)**
Constant	6.2799	4.2389	1.6821	5.9838	4.0348	1.6169
	(20.30)***	(13.38)***	(20.18)***	(15.88)***	(10.20)***	(13.62)***
Industry FE	No	No	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	No	No	No
Adj R^2	0.9019	0.8980	0.8753	0.6730	0.6712	0.6418
Nobs	24,421	24,421	24,421	21,512	21,512	21,512

Table 5. Robustness checks: PSM analysis and Sub-sample groupings

This table reports panel regression results of S&P debt ratings on corporate business strategy and controls using PSM analysis. Panel A reports the mean values of the matched variables for treated and control firms along with the corresponding *t*-statistics. Panel B reports the results of the regression-based on a PSM framework. Panel C re-estimated our primary regression analysis across two-groups comparing the period before and after 2009. To measure S&P debt ratings, we translate letters assigned to S&P debt ratings into three ordinal scales: The S&P 22-point scale (*S&P22*) takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1); the S&P 20-point scale (*S&P20*) takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0); and the S&P 7-point scale (*S&P7*) takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1). To capture business strategy (*BUSTRA*), we assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer). *CONTROLS* include firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), operating loss (*LOSS*), tangibility (*TANG*), interest coverage (*INTCOV*), stock return volatility (*SDRET*), institutional ownership (*IO*), firm age (*LNAGE*), cash flow volatility (*CASVOL*), dividend payment (*DIV*), and CEO ownership (*CEOWN*). Unless otherwise specified, all specifications include industry and year fixed effects (FE). The *t*-statistics in parentheses, based on standard errors, are adjusted for heteroscedasticity while clustered at the firm level. We winsorize continuous (except binary) variables at the 1% and 99% levels. Baseline controls are included in all regressions but are suppressed for brevity. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively. See, Appendix 1, for a detailed definition of variables.

Panel A: Mean compassion across matched samples			
	Treatment	**Control**	***t*-test**
SIZE	8.0392	7.9292	1.13
LEV	0.2076	0.2337	1.85
NI/TA	0.0286	0.0252	0.97
MB	1.3306	1.2310	0.07
LOSS	0.2146	0.3673	1.01
TANG	0.7402	0.7179	1.47
INTCOV	8.7539	8.5392	1.40
SDRET	0.1088	0.1390	0.89
IO	0.6328	0.6060	1.02
LNAGE	2.8356	2.7952	1.11
CASVOL	0.0187	0.0168	0.97
DIV	0.0455	0.0398	1.16
CEOWN	0.0089	0.0076	0.67

Panel B: PSM regressions on matched samples			
Dep. Variable:	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)
BUSTRA	**-0.1601**	**-0.1684**	**-0.0453**
	(-4.58)* **	**(-4.82)*** **	**(-4.89)*** **
Constant	6.3231	4.4372	1.7367
	(17.12)***	(12.18)***	(13.52)***
Controls	Included	Included	Included
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Adj R^2	0.6410	0.6367	0.6089
Nobs	8,188	8,188	8,188

Panel C: Pre 2009 vs. Post 2009						
	1981-2008			*2010-2016*		
Dep. Variable:	*S&P22*	*S&P20*	*S&P7*	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**-0.2173**	**-0.2265**	**-0.0661**	**-0.1787**	**-0.1789**	**-0.0503**
	(-6.52)* **	**(-6.60)*** **	**(-6.04)*** **	**(-5.22)*** **	**(-5.33)*** **	**(-4.28)*** **
Constant	6.0034	4.0712	1.6493	6.0253	4.0043	1.1426
	(15.32)***	(9.68)***	(12.40)***	(12.18)***	(8.80)***	(7.57)***
Controls	Included	Included	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.6753	0.6716	0.6468	0.6215	0.6246	0.5943
Nobs	18,268	18,268	18,268	6,153	6,153	6,153

Table 6: Robustness checks: Change analysis

This table reports panel regression results of S&P debt ratings on corporate business strategy and controls using a change analysis. To measure S&P debt ratings, we translate letters assigned to S&P debt ratings into three ordinal scales: the S&P 22-point scale (*S&P22*) takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1); the S&P 20-point scale (*S&P20*) takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0); and the S&P 7-point scale (*S&P7*) takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1). To capture business strategy (*BUSTRA*), we assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer). *CONTROLS* include firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), operating loss (*LOSS*), tangibility (*TANG*), interest coverage (*INTCOV*), stock return volatility (*SDRET*), and institutional ownership (*IO*), firm age (*LNAGE*), cash flow volatility (*CASVOL*), dividend payment (*DIV*), and CEO ownership (*CEOWN*). The symbol *Δ* indicates the change in each variable. Unless otherwise specified, all specifications include industry and year fixed effects (FE). The *t*-statistics in parentheses, based on standard errors, are adjusted for heteroscedasticity while clustered at the firm level. We winsorize continuous (except binary) variables at the 1% and 99% levels. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively. See, Appendix 1, for a detailed definition of variables.

Dep. Variable:	*ΔS&P22*	*ΔS&P20*	*ΔS&P7*
	(1)	(2)	(3)
ΔBUSTRA	**-0.2356**	**-0.2479**	**-0.0742**
	(-7.00)* **	**(-7.18)*** **	**(-6.20)*** **
ΔSIZE	0.9646	0.9693	0.3192
	(69.22)***	(67.14)***	(65.67)***
ΔLEV	-3.6167	-3.6562	-1.2779
	(-20.90)***	(-19.24)***	(-20.96)***
ΔNI/TA	2.8326	3.3124	0.8554
	(10.85)***	(11.73)***	(9.40)***
ΔMB	-0.0018	-0.0012	-0.0006
	(-1.21)	(-0.77)	(-1.20)
ΔLOSS	-0.8547	-0.8169	-0.2937
	(-17.21)***	(-15.84)***	(-16.61)***
ΔTANG	0.6317	0.6070	0.1980
	(12.07)***	(11.17)***	(10.79)***
ΔINTCOV	0.0022	0.0021	0.0013
	(5.81)***	(5.17)***	(4.99)***
ΔSDRET	-14.8651	-15.6128	-4.9548
	(-45.71)***	(-44.00)***	(-42.79)***
ΔIO	0.3888	0.3111	0.0798
	(4.51)***	(3.46)***	(2.61)***
ΔLNAGE	0.2526	0.2452	0.0803
	(14.52)***	(13.80)***	(12.90)***
ΔCASVOL	-2.6283	-2.663	-0.9642
	(-6.68)***	(-6.60)***	(-7.15)***
ΔDIV	-0.0012	-0.0015	-0.0004
	(-1.62)	(-1.94)*	(-1.58)
ΔCEOWN	0.8702	0.8881	0.3342
	(2.09)**	(2.03)**	(2.46)**
Constant	5.9838	4.0348	1.6169
	(15.88)***	(10.20)***	(13.62)***
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Adj R^2	0.6278	0.6256	0.6166
Nobs	21,512	21,512	21,512

Table 7: Robustness checks: Alternative measures

This table reports panel regression results of S&P debt ratings on corporate business strategy and controls using alternative measures of credit ratings. *DEFAULT1* is a binary measure equal to one (zero) if the original Altman Z-Score falls in the bankruptcy level above (below) 1.81. *DEFAULT2* is a binary measure equal to one (zero) if the modified Altman Z-Score falls in the bankruptcy level above (below) 1.1. To capture business strategy (*BUSTRA*), we assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer). *CONTROLS* include firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), operating loss (*LOSS*), tangibility (*TANG*), interest coverage (*INTCOV*), stock return volatility (*SDRET*), and institutional ownership (*IO*), firm age (*LNAGE*), cash flow volatility (*CASVOL*), dividend payment (*DIV*), and CEO ownership (*CEOWN*) Unless otherwise specified, all specifications include industry and year fixed effects (FE). The *t*-statistics in parentheses, based on standard errors, are adjusted for heteroscedasticity while clustered at the firm level. We winsorize continuous (except binary) variables at the 1% and 99% levels. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively. See, Appendix 1, for a detailed definition of variables.

Dep. Variable:	*DEFAULT1*	*DEFAULT2*
	(1)	(2)
BUSTRA	**-0.0294**	**-0.0112**
	(-5.58)* **	**(-2.26)** **
SIZE	0.0304	0.0248
	(14.57)***	(13.54)***
LEV	-0.9914	-0.8037
	(-35.15)***	(-31.09)***
NI/TA	0.6090	0.7078
	(15.43)***	(8.83)***
MB	0.0005	0.0003
	(2.11)**	(1.17)
LOSS	-0.1745	-0.1216
	(-19.45)***	(-14.82)***
TANG	0.0478	0.0314
	(5.46)***	(4.14)***
INTCOV	0.0021	0.0007
	(13.77)***	(7.31)***
SDRET	-0.5935	-0.8331
	(-11.39)***	(-17.16)***
IO	0.1519	0.0506
	(11.12)***	(4.18)***
LNAGE	0.0090	0.0071
	(2.99)***	(2.02)**
CASVOL	-0.0923	-0.1077
	(-2.15)**	(-2.40)**
DIV	-0.0001	-0.0001
	(-0.86)	(-0.92)
CEOWN	0.1309	0.1225
	(2.03)**	(1.96)**
Constant	-0.3697	-0.4064
	(-7.51)***	(-10.45)***
Industry FE	Yes	Yes
Year FE	Yes	Yes
Pseudo R^2	0.4740	0.3889
Nobs	24,421	24,421

Table 8. Information environment, business strategy, and credit ratings

This table reports panel regression results on how the corporate information environment affects the relationship between corporate business strategy and credit ratings. We use financial analyst coverage (*ANA*) and Amihud's illiquidity estimate (*ILLIQ*). For each fiscal year, we sort the firms into two groups (High vs. Low) based on above (below) the median value of *ANA* in year *t*-1 and *ILLIQ* in year *t*-1. Panel A (B) regresses S&P debt ratings on corporate business strategy and controls when conditional on financial analyst coverage (stock liquidity). To measure S&P debt ratings, we translate letters assigned to S&P debt ratings into three ordinal scales: the S&P 22-point scale (*S&P22*) takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1); the S&P 20-point scale (*S&P20*) takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0); and the S&P 7-point scale (*S&P7*) takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1). To capture business strategy (*BUSTRA*), we assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer). *CONTROLS* include firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), operating loss (*LOSS*), tangibility (*TANG*), interest coverage (*INTCOV*), stock return volatility (*SDRET*), institutional ownership (*IO*), firm age (*LNAGE*), cash flow volatility (*CASVOL*), dividend payment (*DIV*), and CEO ownership (*CEOWN*). Unless otherwise specified, all specifications include industry and year fixed effects (FE). The *t*-statistics in parentheses, based on standard errors, are adjusted for heteroscedasticity while clustered at the firm level. We winsorize continuous (except binary) variables at the 1% and 99% levels. Baseline controls are included in all regressions but are suppressed for brevity. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively. See, Appendix 1, for a detailed definition of variables.

Panel A: Financial analyst coverage

	LowANA			***HighANA***		
Dep. Variable:	*S&P22*	*S&P20*	*S&P7*	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**-0.2740**	**-0.2861**	**-0.0884**	**-0.0991**	**-0.1151**	**-0.0310**
	(-6.20)* **	**(-6.36)*** **	**(-5.65)*** **	**(-2.32)** **	**(-2.58)*** **	**(-2.02)** **
Constant	12.8578	10.7382	3.4232	7.7422	5.9309	2.1911
	(26.54)***	(22.02)***	(20.75)***	(26.19)***	(17.81)***	(20.54)***
Controls	Included	Included	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.6534	0.6544	0.6159	0.6303	0.6258	0.6023
Nobs	12,171	12,171	12,171	12,250	12,250	12,250

Panel B: Amihud's illiquidity estimate

	HighILLIQ			***LowILLIQ***		
Dep. Variable:	*S&P22*	*S&P20*	*S&P7*	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**-0.2650**	**-0.2680**	**-0.0909**	**-0.1025**	**-0.1263**	**-0.0281**
	(-6.19)* **	**(-6.21)*** **	**(-5.98)*** **	**(-2.33)** **	**(-2.73)*** **	**(-1.79)**
Constant	6.2924	4.3998	1.6968	7.058	4.9761	1.9551
	(14.34)***	(8.90)***	(12.81)***	(12.60)***	(8.90)***	(10.63)***
Controls	Included	Included	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.6208	0.6111	0.5878	0.5903	0.5920	0.5458
Nobs	12,210	12,210	12,210	12,211	12,211	12,211

Table 9. Corporate governance, business strategy, and credit ratings

This table reports panel regression results on how corporate governance settings affect corporate business strategy and credit ratings. To capture corporate governance, we use a number of alternative measures, including institutional ownership (*IO*), board independence (*BI*), board size (*BS*), and takeover index (*TOIND*). For each fiscal year, we sort the firms into two groups (High vs. Low) based on above (below) the median value of each measure in year *t*-1. In Panels A through D, we regress S&P debt ratings on corporate business strategy and controls conditional on alternative corporate governance measures. To measure S&P debt ratings, we translate letters assigned to S&P debt ratings into three ordinal scales: The S&P 22-point scale (*S&P22*) takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1); the S&P 20-point scale (*S&P20*) takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0); and the S&P 7-point scale (*S&P7*) takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1). To capture business strategy (*BUSTRA*), we assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer). *CONTROLS* include firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), operating loss (*LOSS*), tangibility (*TANG*), interest coverage (*INTCOV*), stock return volatility (*SDRET*), and institutional ownership (*IO*), firm age (*LNAGE*), cash flow volatility (*CASVOL*), dividend payment (*DIV*), and CEO ownership (*CEOWN*). Unless otherwise specified, all specifications include industry and year fixed effects (FE). The *t*-statistics in parentheses, based on standard errors, are adjusted for heteroscedasticity while clustered at the firm level. We winsorize continuous (except binary) variables at the 1% and 99% levels. Baseline controls are included in all regressions but are suppressed for brevity. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively. See, Appendix 1, for a detailed definition of variables.

Panel A: Institutional ownership

	LowIO			***HighIO***		
Dep. Variable:	*S&P22*	*S&P20*	*S&P7*	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**-0.3430**	**-0.3547**	**-0.1084**	**-0.0866**	**-0.0899**	**-0.0360**
	(-7.50)***	**(-7.47)*****	**(-6.72)*****	**(-2.01)****	**(-2.07)****	**(-2.33)****
Constant	6.8343	4.9379	1.8792	10.2236	8.2560	2.6110
	(16.33)***	(10.44)***	(14.47)***	(13.37)***	(10.64)***	(10.23)***
Controls	Included	Included	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.7172	0.7138	0.6920	0.6610	0.6586	0.6215
Nobs	12,210	12,210	12,210	12,211	12,211	12,211

Panel B: Board independence

	LowBI			***HighBI***		
Dep. Variable:	*S&P22*	*S&P20*	*S&P7*	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**-0.1550**	**-0.1605**	**-0.0897**	**-0.1061**	**-0.0955**	**-0.0438**
	(-2.22)**	**(-2.29)****	**(-2.06)****	**(-1.47)**	**(-1.32)**	**(-1.70)***
Constant	13.0985	11.0215	3.4222	5.2586	3.1629	1.3426
	(19.81)***	(16.58)***	(15.81)***	(4.73)***	(2.86)***	(5.21)***
Controls	Included	Included	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.6556	0.6562	0.6186	0.6457	0.6476	0.6128
Nobs	4,689	4,689	4,689	4,012	4,012	4,012

Panel C: Board size

	LowBS			***HighBS***		
Dep. Variable:	*S&P22*	*S&P20*	*S&P7*	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**-0.2463**	**-0.2488**	**-0.0797**	**-0.1924**	**-0.1950**	**-0.0268**
	(-5.20)***	**(-5.16)*****	**(-4.76)*****	**(-3.20)*****	**(-3.32)*****	**(-2.11)****
Constant	6.5063	4.4757	1.7935	8.3539	6.2707	1.9250
	(14.64)***	(9.21)***	(13.93)***	(10.11)***	(7.61)***	(7.71)***
Controls	Included	Included	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.6471	0.6435	0.646	0.6393	0.6375	0.6399
Nobs	5,315	5,315	5,315	5,142	5,142	5,142

Panel D: Takeover index						
	HighTOIND			***LowTOIND***		
Dep. Variable:	*S&P22*	*S&P20*	*S&P7*	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**-0.0058**	**-0.0201**	**-0.0009**	**-0.3026**	**-0.313**	**-0.1078**
	(-0.12)	**(-0.40)**	**(-0.05)**	**(-6.09)*** **	**(-6.13)*** **	**(-6.18)*** **
Constant	8.2232	6.0738	1.8173	4.9457	2.9079	1.3122
	(14.47)***	(10.25)***	(9.39)***	(12.73)***	(6.99)***	(9.89)***
Controls	Included	Included	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.6482	0.6418	0.6116	0.6932	0.6931	0.6611
Nobs	6,459	6,459	6,459	7,084	7,084	7,084

Table 10. Policy uncertainty, business strategy, and credit ratings

This table reports panel regression results on how the U.S. policy uncertainty affects the relationship between corporate business strategy and credit ratings. To capture policy uncertainty, we use the index of economic policy uncertainty (*EPU*) and the U.S. presidential election (*ELECT*). For each fiscal year, we sort the firms into two groups (High vs. Low) based on above (below) the median value of *EPU* in year *t*-1. In Panel A (B), we regress S&P debt ratings on corporate business strategy and controls conditional on economic policy uncertainty (the U.S. presidential election). To measure S&P debt ratings, we translate letters assigned to S&P debt ratings into three ordinal scales: The S&P 22-point scale (*S&P22*) takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1); the S&P 20-point scale (*S&P20*) takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0); and the S&P 7-point scale (*S&P7*) takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1). To capture business strategy (*BUSTRA*), we assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer). *CONTROLS* include firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), operating loss (*LOSS*), tangibility (*TANG*), interest coverage (*INTCOV*), stock return volatility (*SDRET*), institutional ownership (*IO*), firm age (*LNAGE*), cash flow volatility (*CASVOL*), dividend payment (*DIV*), and CEO ownership (*CEOWN*). Unless otherwise specified, all specifications include industry and year fixed effects (FE). The *t*-statistics in parentheses, based on standard errors, are adjusted for heteroscedasticity while clustered at the firm level. We winsorize continuous (except binary) variables at the 1% and 99% levels. Baseline controls are included in all regressions but are suppressed for brevity. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively. See, Appendix 1, for a detailed definition of variables.

Panel A: Economic policy uncertainty

	HighEPU			***LowEPU***		
Dep. Variable:	*S&P22*	*S&P20*	*S&P7*	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**-0.5912**	**-0.5980**	**-0.1971**	**-0.0183**	**-0.0191**	**-0.0245**
	(-8.56)* **	**(-8.41)*** **	**(-7.80)*** **	**(-1.13)**	**(-1.18)**	**(-1.01)**
Constant	10.2809	8.1256	2.5551	4.7832	2.8874	1.2174
	(19.54)***	(14.98)***	(12.76)***	(12.85)***	(7.76)***	(8.43)***
Controls	Included	Included	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.6991	0.6964	0.6734	0.6426	0.6390	0.6076
Nobs	8,842	8,842	8,842	8,842	8,842	8,842

Panel B: The U.S. presidential election

	ELECT			***NON-ELECT***		
Dep. Variable:	*S&P22*	*S&P20*	*S&P7*	*S&P22*	*S&P20*	*S&P7*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**-0.1956**	**-0.2173**	**-0.0654**	**-0.2234**	**-0.2298**	**-0.0784**
	(-5.30)* **	**(-5.53)*** **	**(-4.71)*** **	**(-3.71)*** **	**(-3.58)*** **	**(-3.56)*** **
Constant	6.6472	4.7311	1.7981	6.1765	4.1476	1.6674
	(17.16)***	(11.46)***	(13.91)***	(9.34)***	(6.28)***	(7.66)***
Controls	Included	Included	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.6835	0.6801	0.6514	0.6712	0.6685	0.6417
Nobs	6,170	6,170	6,170	18,251	18,251	18,251

Table 11. Business strategy, credit ratings, and cost of debt

This table reports panel regression results on how S&P debt ratings affect the relation between corporate business strategy and cost of debt (*CoD*), where *CoD* is our dependent variable. For each fiscal year, we sort the firms into two groups (*HighRATINGS* vs. *LowRATINGS*) based on above (below) the median value of S&P debt ratings in year *t.* To capture business strategy (*BUSTRA*), we assign a dummy measure equal to one (zero) for prospector-type firms (defender and analyzer). *CONTROLS* include firm size (*SIZE*), market-to-book (*MB*), leverage (*LEV*), profitability (*NI/TA*), capital expenditure (*CAPEX*), audit quality (*BIG4*), financial positioning (*Z-Score*), and systematic risk (*BETA*). Unless otherwise specified, all specifications include industry and year fixed effects (FE). The *t*-statistics in parentheses, based on standard errors, are adjusted for heteroscedasticity while clustered at the firm level. We winsorize continuous (except binary) variables at the 1% and 99% levels. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively. See, Appendix 1, for a detailed definition of variables.

	HighRATINGS			***LowRATINGS***		
	S&P22	S&P20	S&P7	S&P22	S&P20	S&P7
Dep. Variable:	*CoD*	*CoD*	*CoD*	*CoD*	*CoD*	*CoD*
	(1)	(2)	(3)	(4)	(5)	(6)
BUSTRA	**0.2997**	**0.4723**	**0.1863**	**0.4949**	**0.5909**	**0.2835**
	(2.18)**	**(2.05)****	**(1.82)***	**(2.94)*****	**(3.59)*****	**(2.80)*****
SIZE	-0.1597	-0.0452	-0.1703	-0.9913	-1.0722	-0.9124
	(-1.76)*	(-0.48)	(-2.08)**	(-6.79)***	(-6.99)***	(-7.94)***
LEV	0.1130	0.5941	0.2750	0.1474	0.6161	0.5234
	(8.62)***	(10.25)***	(4.82)***	(13.21)***	(13.82)***	(10.19)***
BIG4	-0.7501	-0.8742	-0.2000	-0.9285	-0.8924	-0.2438
	(-2.27)**	(-2.63)***	(-0.88)	(-3.11)***	(-3.99)***	(-1.77)*
NI/TA	-0.6133	-0.9654	-0.4197	-0.5544	-0.7572	-0.5775
	(-6.89)***	(-7.07)***	(-5.54)***	(-3.60)***	(-3.65)***	(-8.20)***
MB	0.0112	0.0131	0.0195	0.0234	0.0173	0.0128
	(0.59)	(1.09)	(1.58)	(1.07)	(1.34)	(1.28)
Z-Score	0.7457	0.1774	0.068	0.4015	0.1995	0.1271
	(0.65)	(0.52)	(0.80)	(0.32)	(0.14)	(1.06)
CAPEX	1.0406	1.1374	0.2675	1.6123	1.7857	0.6468
	(2.79)***	(2.66)***	(3.32)***	(7.63)***	(8.53)***	(4.09)***
BETA	0.6098	0.7365	0.5884	0.5683	0.7105	0.8154
	(2.83)***	(2.89)***	(2.44)**	(2.36)**	(2.81)***	(4.26)***
Constant	3.2676	3.5411	2.3762	1.2495	0.2752	3.4218
	(0.82)	(0.87)	(0.67)	(0.90)	(0.21)	(1.66)*
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.2703	0.2842	0.2474	0.4565	0.4711	0.4173
Nobs	11,507	10,167	16,065	9,720	11,060	5,162

Appendix 1. Definition of variables

Variables	Acronym	Description	Sources
1. Dependent variables			
S&P Credit Ratings	*S&P22*	The S&P 22-point scale takes an ordinal value of 22 (1) for better (worse) letter ratings (e.g., AAA = 22, …. D or SD = 1).	Compustat
	S&P20	The S&P 20-point scale takes an ordinal value of 20 (0) for better (worse) letter ratings (e.g., AAA = 20, …. D or SD = 0).	Compustat
	S&P7	The S&P 7-point scale takes an ordinal value of 7 (1) for better (worse) letter ratings (e.g., AAA = 7, …. D or SD = 1).	Compustat
	DEFAULT1	A binary measure is equal to one (zero) if the original Altman Z-Score falls in the bankruptcy level above (below) 1.81.	Compustat
	DEFAULT2	A binary measure is equal to one (zero) if the modified Altman Z-Score falls in the bankruptcy level above (below) 1.1.	Compustat
2. Firm-level variables			
Business strategy	*BUSTRA*	A dummy measure is equal to one (zero) for prospector-type firms (defender and analyzer). See, for example, Appendix 2 for a detailed estimating procedure.	Compustat
Firm size	*SIZE*	Firm size, defined as the natural logarithm of total assets.	Compustat
Market to book	*MB*	Market to book, defined as the ratio of the market value of equity to the book value of equity.	Compustat
Leverage	*LEV*	Leverage, defined as long-term debt plus debt in current liabilities divided by book assets.	Compustat
Profitability	*NI/TA*	Profitability, defined as the ratio of net income to total assets.	Compustat
Operating loss	*LOSS*	Operating loss, defined as a dummy measure equal to one (zero) if a firm's net income to total assets is negative (positive).	Compustat
Tangibility	*TANG*	Tangibility, defined as the ratio of gross property, plant, and equipment scaled by total assets.	Compustat
Interest coverage	*INTCOV*	Interest coverage, defined as the ratio of operating income before depreciation divided by interest expense.	Compustat
Stock return volatility	*SDRET*	Stock return volatility, defined as the annualized standard deviation of monthly stock returns.	CRSP
Firm age	*LNAGE*	Logarithm of age where age of the Firm is measured in years since the firm entered the Compustat.	Compustat
Dividend payment	*DIV*	DIV as ratio of total dividend paid (DVC) divided by cash flow times 100.	Compustat
Cash flow volatility	*CASVOL*	The standard deviation of cash flow from operations in the past 5 years (with a minimum of 3 years). Cash flow from operations is earnings before extraordinary items (Compustat #18) minus total accruals, scaled by average total assets (Compustat #6), where total accruals are equal to changes in current assets (Compustat #4) minus changes in cash (Compustat #1), changes in current liabilities (Compustat #5), and depreciation expense (Compustat #14) plus changes in short-term debt (Compustat #34).	Compustat
CEO Ownership	*CEOWN*	The percentage of outstanding common shares held by a CEO as a fraction of common stocks outstanding.	Proxy Statements/ ExecuComp
Institutional ownership	*IO*	Institutional ownership, defined as the percentage of shares outstanding held by institutional investors, taking the average over the four quarters of the firm's fiscal year t. *IO* is set to zero if it is missing.	13F
Analyst coverage	*ANA*	Analyst coverage, defined as the natural logarithm of one plus the average of the monthly number of analysts following a firm.	I/B/E/S
Amihud's (2002)	*ILLIQ*	Illiquidity estimate, defined as an average ratio of the absolute daily return to the (dollar) trading volume on	CRSP

illiquidity estimate		that day, giving the absolute (percentage) price change per dollar of daily trading volume, or the daily price impact of the order flow (multiplied by100,000 for presentation).	
Board independence	*BI*	Board independence, defined as the percentage of independent directors on the board. We first use the BoardEx database to obtain this variable. We then use the institutional shareholder services (ISS) database to obtain the missing *BI*.	BoardEx
Economic policy uncertainty	*EPU*	EPU, defined as the monthly economic policy uncertainty index compiled by Baker et al. (2016). This index is based on: (1) the searches of newspaper articles containing terms regarding economic policy uncertainty; (2) data from the Congressional Budget Office on the present value of future scheduled tax code expirations; and (3) data from the Federal Reserve Bank of Philadelphia's Survey of Professional Forecaster about economic forecaster disagreement on consumer price index, purchase of goods and services by state and local governments, and purchases of goods and services by the federal government.	Baker et al. (2016)
Presidential elections	*ELECT*	A dummy measure is equal to one (zero) if the U.S. holds a presidential election.	Database of Political Institutions
Audit quality	*BIG4*	A dummy variable equals one if a firm employs a Big four auditor and zero otherwise.	Audit Analytics
Financial positioning	*Z-score*	Altman's Z-score.	CRSP
Capital expenditure	*CAPEX*	Capital expenditure to total assets	Compustat
Systematic risk	*BETA*	Systematic risk, defined as a stock's beta determined over 36 months ending in the month of issue forecast.	CRSP

Appendix 2. Business strategy composite measure

We follow Ittner et al. (1997) and Miles and Snow (1978, 2003) to create a discrete business strategy composite measure, reflecting a firm's business strategy.

Business strategy composite measure	**Variable measurement**
1). Ratio of research and development to sale (RDS5) *Company's propensity to search for new products.*	The ratio of research and development expenditures to sales computed over a rolling prior five-year average.
2). Ratio of the employee to sale (EMPS5) *Company's ability to produce and distribute Products and services efficiently.*	The ratio of the number of employees to sales computed over a rolling prior five-year average.
3). Change in total revenue (REV5) *Company's historical growth or investment opportunities*	One-year percentage change in total sales computed over a rolling prior five-year average.
4). Marketing to sale (SGA5) *Company's focus on exploiting new products and services*	Ratio of selling, general and administrative expenses to sales computed over a rolling prior five-year average.
5). Employee fluctuations (EMP5) *Company's organizational stability*	The standard deviation of the total number of employees computed over a rolling prior five-year period.
6). Capital intensity (CAP5) *Company's commitment to technological efficiency*	Capital intensity which is measured as net PPE scaled by total assets computed over a rolling prior five-year average.

Appendix 3. Correlation matrix

Variables		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
BUSTRA	1	1.000																
S&P22	2	-0.057	1.000															
S&P20	3	-0.056	0.981	1.000														
S&P7	4	-0.054	0.977	0.977	1.000													
SIZE	5	0.040	0.499	0.500	0.494	1.000												
LEV	6	-0.035	-0.427	-0.427	-0.420	-0.249	1.000											
NI/TA	7	0.017	0.502	0.502	0.484	0.206	-0.394	1.000										
MB	8	0.021	0.073	0.073	0.069	0.127	0.178	0.113	1.000									
LOSS	9	-0.011	-0.445	-0.445	-0.430	-0.205	0.278	-0.727	-0.064	1.000								
TANG	10	-0.394	0.118	0.118	0.116	0.047	0.097	-0.072	-0.065	0.022	1.000							
INTCOV	11	0.038	0.607	0.607	0.592	0.354	-0.656	0.717	0.047	-0.526	-0.081	1.000						
SDRET	12	0.012	-0.596	-0.596	-0.583	-0.377	0.221	-0.375	-0.104	0.403	-0.102	-0.190	1.000					
IO	13	0.109	0.025	0.025	0.029	0.340	-0.248	0.157	0.006	-0.116	-0.172	0.223	-0.062	1.000				
LNAGE	14	0.091	0.198	0.150	0.147	0.147	0.113	-0.061	0.146	-0.063	-0.012	0.110	0.041	0.061	1.000			
CASVOL	15	-0.073	-0.214	-0.142	-0.208	0.192	0.071	-0.147	-0.062	0.151	-0.122	-0.092	0.043	-0.025	-0.055	1.000		
DIV	16	0.055	0.132	0.115	0.115	-0.097	0.032	-0.157	-0.081	-0.092	-0.143	0.151	-0.035	-0.101	-0.143	0.081	1.000	
CEOWN	17	0.206	0.159	0.212	0.073	-0.022	0.132	0.172	0.172	-0.142	-0.071	0.012	0.091	0.106	0.105	0.021	0.053	1.000