Authors	Research question	Sample	Main findings
Beatty et al. [8]	• Investigate how private information and monitoring affects both the sensitivity of investment to internally generated cash flows and the role of accounting quality in reducing this sensitivity.	• Sample of 1,034 firms and 3,575 firm years from 2000 to 2005.	• Financing frictions are lower when debt is obtained from banks with private information and banks place direct restrictions on investments. • Access to private information and direct restrictions on investments are likely to affect the extent to which accounting quality reduces financing frictions. • For financially constrained firms, banks' access to private information reduces the investment-cash flow sensitivity, and decreases the value of accounting quality. • For both financially constrained and unconstrained firms, covenants directly restricting capital expenditures also mitigate the negative effects of information asymmetry on investment spending. • The importance of accounting quality is eliminated in the presence of covenants that directly restrict capital expenditures.
Biddle et al. [11]	• Examine if higher financial reporting quality can be associated with either lower over- or under-investment.	• Sample of 34,791 firm year observations from 1993 to 2005.	• There is a conditional negative (positive) association between financial reporting quality and investment for firms operating in settings more prone to over-investment (under-investment). • Firms with higher financial reporting quality deviate less from predicted investment levels and show less sensitivity to macroeconomic conditions.
Biddle and Hilary [6]	• Examine whether accounting quality affects the efficiency of firm-	• Sample of 34 countries and data	• Higher accounting quality should enhance investment

	level capital investments.	from 1993 to 2004.	efficiency by reducing information asymmetry between managers and outside suppliers of capital. • A stronger (weaker) relation between accounting quality and capital investment efficiency in countries with predominant equity (bank) financing of firm-level capital investment.
Braouezec [26]	• Examines leverage as way to finance a fraction of the investment cost. • Creates a model to predict the negative relation between the market-to-book ratio and the leverage ratio.	• A simple symmetric information continuous time model.	• Underinvestment cannot arise while overinvestment may and the room for overinvestment is negatively related with the fraction paid by equity holders. • The model predicts the negative relation between the market-to-book ratio and the leverage ratio.
Bushman et al. [20]	• Study the relation between corporate investment and internally generated cash flows to test for the existence and significance of financing constraints.	• Sample the universe of manufacturing firms from 1971 to 2006.	• Patterns in investment-cash flow sensitivities across a priori partitions for financial constraints are driven by the fact that the primary cash flow measure used in the literature embeds not only cash flows, but also, via the accrual accounting mechanism, changes in working capital. • Argue that much of the extant literature confounds the notion of cash flow with accrual accounting net income, which by construction does not represent cash flow.
Cariola et al. [18]	• Discuss the potential conflicts of interest between managers, stockholders and debtholders influence capital structure corporate governance activities and investment policies, which in turn, could give rise to inefficient managerial decisions and suboptimal investment that generally fall under the	• Academic research literature papers review.	• Investigate in greater depth the interaction between investment decisions (over-investment, under-investment) and financing decisions through the window of creating value. • By identifying their causes, determining factors and the

	categories of problems of underinvestment and overinvestment.		consequences on the value production processes, as well as to pointing out possible solutions to them. • Confront the effects on firm governance activities presented by recent researches, and summarize the main financial proposals found in literature that can diminish their impact.
Chen et al. [13]	• Examine the relation between financial reporting quality (FRQ) and investment efficiency for a sample of private firms in emerging markets. • Explore the role of accounting information for a set of firms for which there is very limited prior research evidence: private firms from emerging markets.	• Sample of 6,727 firms from 21 countries and period from 2002 to 2005.	• Accounting quality positively affects investment efficiency for their sample of firms. Financial reporting quality (FRQ) is negatively related to both underinvestment and overinvestment. • The relation between financial reporting quality and investment efficiency is stronger if a firm's investment is funded relatively more through bank financing than other sources of financing. • For firms with the strongest incentives to manage earnings for tax purposes, the positive association between accounting quality and investment efficiency is significantly reduced.
Chen et al. [16]	• Study the relationship between free cash flows (FCF) and Over-investment and the moderating effects of the characteristics of independent directors. • Examine the relationship between the corporate free cash flows and level of over-investment which measured by an accounting-based framework and then make empirical analyses and examine the moderating effect of characteristics of independent	• Sample of China's a share listed companies 2,929 firm year observations from 2007 to 2009.	• FCF has a positive correlation with the over-investment. • In China, independent directors play an important role in restricting the level of over-investment, and in different situations the degree of restricting effects varies.

	directors on the relationship.		
Daske et al. [27]	• Examine the economics consequences of mandatory IFRS reporting around the world. • Analyze the effects on market liquidity, cost of capital, and Tobin's Q.	• Sample of 8,726 firms from 26 IFRS adoption countries with 34,673 firm year observations and 17,389 firms of 25 non IFRS adoption countries 70,854 firm year observations from period 2001-2005.	• IFRS adoption increase market liquidity increases, decrease firms' cost of capital and there is also an increase in equity valuations, but only if they account for the possibility that the effects occur prior to the official adoption date.
Daske [1]	• Investigate the common conjecture that IFRS or US GAAP reduce the cost of capital for adopting firms.	• Sample of 735 German firms of 24,359 firm month observations of period 1993-2002.	• Evidence from the period 1993-2002 fails to document lower expected cost of equity capital for firms applying IFRS or US GAAP. • Analyzing the expected cost of equity capital in fact appears to have rather increased under non-local accounting standards.
Huang and Yan [12]	• Examine the relationship among shareholding structure over-investment and firm value through empirical tests. • They explore the efficiency of resources after state-owned and private enterprise acquiring credit from the view of shareholding structure.	• Sample of 1,704 firms from listed Shenzhen Stock Exchange from 2007 to 2009.	• State-owned enterprises are more easily to obtain credit resources than private enterprises, due to the credit discrimination, but the less firm value they get, since when the state-owned enterprise get larger-scale credit resources, the more seriously over-investment, which reduces the firm value.
Hovakimian [17]	• Examine whether investment cash flow sensitivity is associated with both underinvestment when cash flows are low and overinvestment when cash flows are high. • Examine the investment-cash flow sensitivity issue, the investment and financing distortions associated with investment cash flow sensitivity, their economic significance, as well as their	• Sample of 7,176 firms with 60,285 firm year observations from 1985 to 2003.	• Investment cash flow sensitivity is associated with both underinvestment when cash flows are low and overinvestment when cash flows are high and more precisely cash flow sensitive firms face financial constraints. • Accessibility of external capital is positively correlated with cash flows, intensifying investment

	underlying factors.		cash flow sensitivity. • Managers actively counteract the variations in internal and external liquidity by accumulating working capital when liquidity is high and draining it when liquidity is low.
Lee et al. [2]	• Analyse the impact of mandatory IFRS adoption on the cost of capital.	• Sample from 17 European countries with 18,336 firm year observations for PEG model and 18,900 for AEG model of period 1995-2006.	• In countries with high financial reporting incentives there is a significant reduction in the cost of equity capital after the IFRS adoption.
Li [4]	• Examines whether the mandatory IFRS adoption in the European Union (EU) in 2005 reduces the cost of equity capital.	• Sample of 1,084 EU firms 6,456 firm year observations from 18 EU countries during 1995-2006 period.	• IFRS adoption significantly reduces on average the cost of equity for mandatory adopters. • Increased disclosure and enhanced information comparability are two mechanisms behind the cost of equity reduction. • This reduction is present only in countries with strong legal enforcement. • While mandatory IFRS adoption significantly lowers firms' cost of equity, the effects depend on the strength of the countries' legal enforcement.
Li [24]	• Examines whether overinvestment can partially explain the negative association between capital investments (long term asset accruals), future profitability and stock returns.	• Sample of 133,277 frim year observations of 14,446 firms from 1962 to 2002.	• Capital investment has a robust negative implication for future profitability. The negative association is stronger when firms have greater investment discretion, i.e. for those firms with higher free cash flow and low leverage. • The negative association between investment future

			profitability and stock returns is almost exclusively driven by positive discretionary investment where overinvestment is much less likely.
Li and Tang [8]	• Investigate how one aspect of earnings quality (discretionary accruals) impacts future investment pattern and efficiency.	• Sample 60,728 and 50.306 firm year observations from 1988 to 2005.	• Firms with large positive discretionary accruals misallocate resources. • Conditional on investment opportunities, investment in fixed assets in period t is less sensitive to internal cash flows for firms with large positive discretionary accruals in period t-1. • At a given level of capital investment in period t, the return on assets in period t+1 is lower for firms with large positive discretionary accruals in period t-1.
McNichols and Stubben [5]	• Examine whether firms manipulating their reported financial results make suboptimal investment decisions. • Investigate whether intentional distortions in accounting numbers affect investments. • Seek to provide evidence on whether accounting misstatements, potentially motivated by compensation targets or capital market expectations, cause distortions in the investment decisions made within firms engaging in the misstatement.	• Sample of 16,023 firms with 134,561 firm year observations from 1978 to 2002 (investigated by the SEC for accounting irregularities).	• Firms that manipulate their earnings, overinvest substantially during the misreporting period. • Earnings management can lead to a direct cost to investors in the form of inefficient investments. • In the period of overstated earnings, misreporting firms overinvest in property, plant, and equipment. • Firms manipulating their earnings do not only alter investors' expectations of the firm's fundamentals, but they also alter the fundamentals.
Mizen and Vermeulen [21]	• Examine the excess sensitivity of investment to cash flow with new methods so as to determine whether differences are associated with structural explanations such as the nature of the financial system and industrial	• Sample of British and German firms, 2,103 UK firm year observations of 378 UK firms and 804 German firm year	• Creditworthiness is the main driving force of cash flow sensitivity.

	composition, or due to other firm-specific determinants such as size or creditworthiness.	observations of 145 German firms.	
Morgado and Pindado [19]	• Study the relationship between firm value and the investment to test the underinvestment and overinvestment hypotheses. • Test the existence of the optimal level of investments, or in other terms, the quadratic relationship, rather than linear, between firm value and investment.	• Sample of 135 Spanish firms and 1,233 firm year observations from 1990 to 1999.	• There is an optimal level of investments. This optimal level of investments is the level where the positive NPV projects are exhausted. Therefore, firms that exceed the optimum find themselves in an overinvestment process, created by the divergence of interests between shareholders and managers and fostered by the existence of asymmetric information.
Myers and Majluf [7]	• Consider a firm that must issue common stock to raise cash to undertake a valuable investment opportunity.	• Development of an equilibrium model.	• Firms may refuse to issue stock, and therefore may pass up valuable investment opportunities. • The model suggests explanations like the tendency to rely on internal sources of funds, and to prefer debt to equity if external financing is required.
Pawlina and Renneboog [22]	• Investigate investment cash flow sensitivity as a result of agency problems or asymmetric information.	• Sample of 985 UK listed firms and 4,416 firm year observations of period 1992-1998.	• Investment is strongly cash flow sensitive. • Investment cash flow sensitivity results mainly from the agency costs of free cash flow. • Financial institutions appear to play a role in mitigating informational asymmetries between firms and capital markets.
Richardson [15]	• Examines the extent of firm level over-investment of free cash flow.	• Sample of 58,053 firm year observations from 1988 to 2002.	• Consistent with agency cost explanations, over-investment is concentrated in firms with the highest levels of free cash flow.
Saad and Zantout [25]	• Examine large-size firms which significantly increase their R&D expenditures experience subsequently three-year-long negative abnormal stock	• Sample from NYSE, AMEX and NASDAQ of firms significantly	• No robust evidence of significant event-induced abnormal returns for small-size sample firms or any systematic risk changes for the

	returns on the magnitude of 56 basis-points per month. • Examine the stock price and systematic risk effects of corporate R&D investment using a sample of firms that significantly increased their corporate-wide R&D expenditures.	increasing their R&D expenditures following a two-year period of no significant change in investment activity of 438 firm year observations from 1962 to 2005.	small- and large- size firms. • The large-size sample firms generate relatively much larger cash flows, have significantly greater overinvestment discretion, and have significantly larger (over-) valuation multiples than the small-size firms. • Moreover, some of their operating performance measures show signs of deterioration instead of improvement following these R&D programs. • Investors initially underestimate the overinvestment in R&D by some large-size firms that appear to be overvalued and have high cash flows at the time of the investment, only to be disappointed later.
Shroff et al. [10]	• Examine how the external information environment in which foreign subsidiaries operate affects the investment decisions of multinational corporations (MNCs).	• Sample with 2,249 parents and 6,298 foreign subsidiaries spanning 63 countries, of 32,163 parent-subsidiary –year observations from 2000 to 2009.	• The investment decisions of foreign subsidiaries in country-industries with more transparent information environments are more responsive to local growth opportunities than are those of foreign subsidiaries in country-industries with transparent information environments. • Further, the role of the information environment on the sensitivity of investment to growth opportunity is greater when there are greater cross-border frictions between the parent and the subsidiary and when the parent is involved in its subsidiary’s investment decision-making processes.
Titman et al. [23]	• Examine the negative relation between abnormal capital investments	• Sample of 40 countries and of total	• Firms that increase their level of capital investment tend to

	and future stock returns.	1,653,547 firm month observations from 1982 to 2005.	achieve lower stock returns. • Investors tend to underreact to the empire building implications of increased investment expenditures. • Although firms that increase capital investments tend to have high past returns and often issue equity, the negative abnormal capital investment/return relation is independent of the previously documented long-term return reversal and secondary equity issue anomalies.
Verdi [12]	• Examine if enhanced financial reporting can have important economic implications such as increased investment efficiency. • Examine the relation between financial reporting quality and investment efficiency providing theoretical support for such a relation.	• Sample of 38,062 firms between 1980 and 2003.	• Financial reporting quality is negatively associated with both firm underinvestment and overinvestment. • Financial reporting quality is more strongly associated with underinvestment for firms financing constraints and with overinvestment for firms with large cash balances. • Higher financial reporting quality can improve investment efficiency by reducing information asymmetry arising from adverse selection and agency conflicts, in two ways like reducing the information asymmetry between the firm and investors and thus lowers the firm's cost of raising funds; and reducing information asymmetry between investors and the manager and thus lowers the shareholders' cost of monitoring managers.