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Are Firms Hoarding Cash Post-Pandemic?

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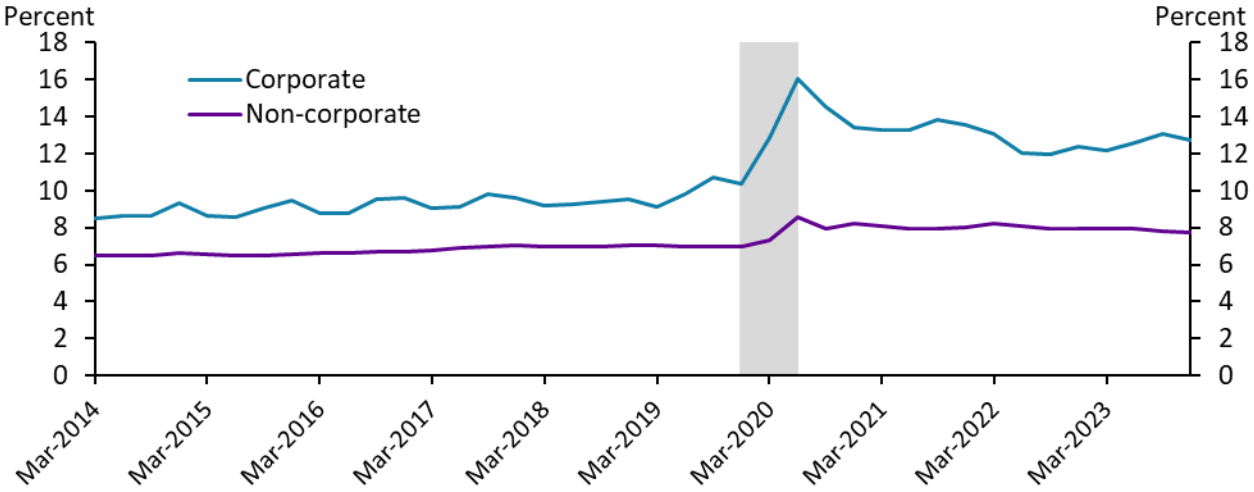
Cash holdings rose to record levels following the pandemic, raising concerns that firms are "hoarding" cash beyond what is needed for economic use. To investigate this claim, we examine the determinants of cash holdings at public firms pre- and post-pandemic. We find that despite significant structural changes in the economy, firms' cash allocation incentives are mostly unchanged. Investment opportunities and profitability best explain the distribution of cash across firms today, followed by precautionary motives.

Business cash holdings have soared since the onset of the COVID-19 pandemic amid surging fiscal spending, a growing Federal Reserve balance sheet, and rising economic uncertainty. As a result, cash holdings relative to GDP remain substantially higher than pre-pandemic levels for both large corporate firms (Chart 1, blue line) and smaller, non-corporate firms (purple line). Historically high aggregate cash balances, combined with the unprecedented structural changes wrought by COVID-19, have fed speculation that firms are now "hoarding" cash, which can be defined as retaining cash in excess of what is needed to cover liquidity needs or take advantage of investment opportunities.

Chart 1: Business cash holdings have increased since the pandemic



Note: Cash is defined as checkable deposits and currency, total time and savings deposits, money market fund shares, security repurchase agreements, and private foreign deposits.
Source: Board of Governors of the Federal Reserve System.

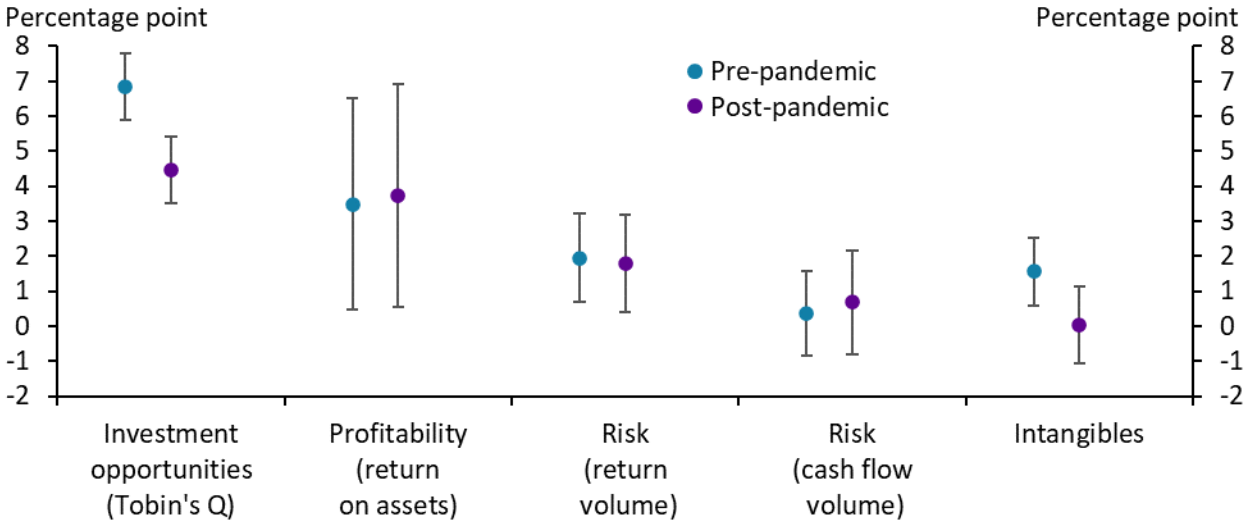
One way to assess whether firms have been hoarding cash since the pandemic is to examine their motives for holding it. Typically, firms are thought to hold cash for either precautionary or investment purposes. Indeed, cash provides liquidity during economic downturns when earnings may be low and external debt markets inaccessible. Cash also allows firms to avoid costly external financing when pursuing investment opportunities. Cash hoarding, however, can have negative effects on firms and the economy more widely. Given that cash generates low relative returns due to its lack of risk, excess cash balances reduce firm profitability. Moreover, management at firms with large cash balances may be

incentivized to make risky investments or to spend frivolously, both of which can threaten a firm's long-term viability and reduce the productive capacity of the economy (Jensen 1987).[1]

To assess whether firms are indeed hoarding cash, we investigate whether firms' reasons for holding cash have changed in recent years by examining pre- and post-pandemic correlations between traditional determinants of cash holdings and the cash ratio—the ratio of firms' cash to assets.[2] Specifically, we examine the degree to which firms are holding cash to position themselves for investment opportunities, to store sudden gains from profitability, to compensate for a lack of collateralizable tangible capital, or to mitigate risk (a precautionary motive).

Chart 2 shows that investment opportunities—measured by the ratio of a firm's market value to its book assets, or Tobin's Q—explain the largest portion of the cash ratio in both the pre- and post-pandemic periods. In our sample, a one-standard-deviation increase in investment opportunities increases the average firm's cash ratio by nearly 5 percentage points, slightly less than the estimated 7 percentage point increase in the pre-pandemic period.

Chart 2: Firms' cash holdings increase with profitability, investment opportunities, and riskiness



Notes: Chart shows estimated effect of a one-standard-deviation change in the firm characteristic on a firm's cash-to-asset ratio. Reported effects are the result of regressing the firm characteristic, log of assets, and an indicator for two-digit NAICS industry code on cash-to-asset ratios among a sample of publicly traded corporate firms ended 2023:Q4. Cash flow and return on assets (ROA) regressions include indicators for unprofitable firms. Vertical lines denote 95 percent confidence intervals.
Sources: S&P Global Market Intelligence Compustat, Center for Research in Security Prices (Wharton Research Data Services), and authors' calculations.

Profitability, measured as return on assets (ROA) over the previous 12 months, ranks a close second in explaining cash holdings. The effect of higher profitability on cash holdings appears to be little changed in the pre- and post-pandemic periods: a one-standard-deviation increase in ROA increases the cash ratio by about 3 to 4 percentage points, on average.

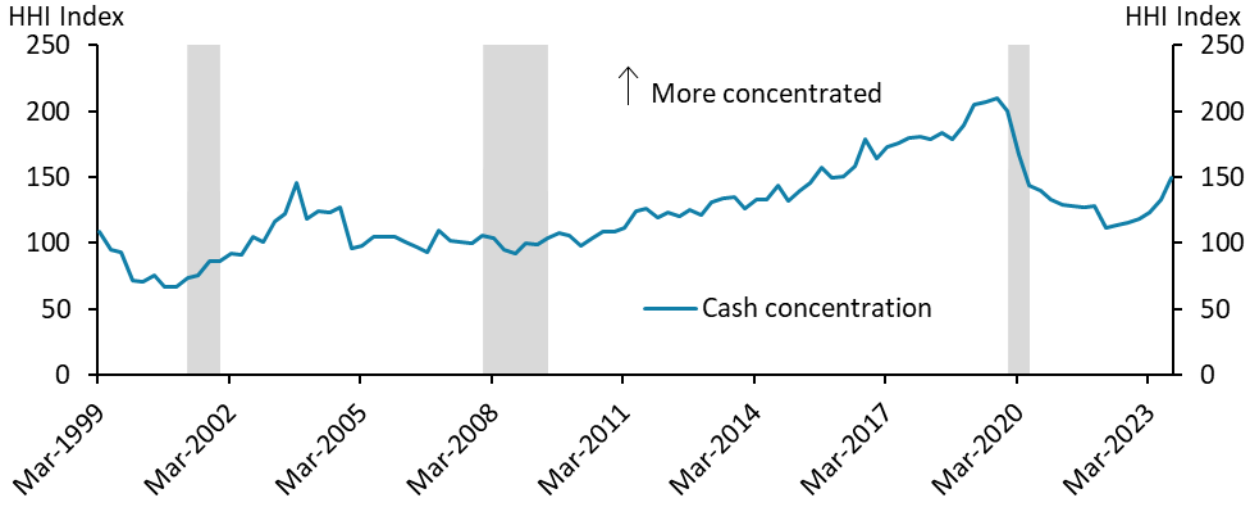
Precautionary motives play a smaller role in explaining cash holdings in both the pre- and post-pandemic periods. Although firm risk does appear to influence cash holdings, the effect is smaller than that for

non-precautionary motives and does not differ between the pre- and post-pandemic periods. Firms have historically held cash balances as a precaution against tapping costly (or inaccessible) external financing, or to smooth income volatility. We represent such precautionary motives using the volatility of a firm's stock return and the volatility of a firm's cash flow, defined as the normalized variance in operating cash flow. Both measures raise cash holdings in the pre- and post-pandemic periods to a similar degree across time, with return volatility exerting a larger force on cash holdings relative to cash flow volatility.

In addition, intangible asset shares, a corollary to precautionary capital holdings for specific business models, do not appear to explain firms' cash holdings. Corporate finance theory argues that firms with more intangible capital have limited access to debt markets because they have less pledgeable collateral (Falato and others 2017). However, we find that this theory explains little of firm cash ratios after controlling for firm size and industry, particularly in the post-pandemic period. Prior to the pandemic, firms with large intangible capital shares had about 1 percentage point higher cash ratios than firms in the same broad industry with less intangible capital. Post-pandemic, however, this effect is statistically indistinguishable from zero. Overall, Chart 2 shows that firms do not appear to be more motivated by precaution to hold cash than they were before the pandemic.

Importantly, the large aggregate cash balances seen recently have not been distributed uniformly across firms. Instead, profit differentials and disparate investment opportunities are encouraging the distribution of cash to normalize. Chart 3 shows that cash concentrations across publicly traded firms are slowly returning to pre-pandemic levels. At the onset of the pandemic, the "dash-for-cash" and disbursement of federal dollars widely distributed money across firms, and cash concentration declined. However, cash concentration has increased more recently. This increased cash concentration suggests, in concert with our results, that cash is migrating back to firms best positioned to deploy it.

Chart 3: Cash concentration has normalized after initially declining during the pandemic



Notes: The Herfindahl-Hirschmann Index is calculated as the sum of squared market shares among all publicly traded firms in a quarter. Publicly traded firms have returns reported in the Center for Research in Security Prices (CRSP) during a given quarter.
Sources: S&P Global Market Intelligence Compustat and CRSP (Wharton Research Data Services).

Overall, increased cash concentration, together with evidence that investment opportunities are driving firms' current cash holdings, suggests that firms are not "hoarding" cash. Rather, our results suggest that cash is accruing to the firms most likely to invest prudently or well-managed enough to operate profitably.

Endnotes

[1] Individual firms that lack investment opportunities can shed cash balances in several ways, including raising dividends or conducting stock buybacks. Both actions can increase aggregate economic growth by encouraging efficient use of capital.

[2] Our estimates control for firm size and industry, both of which can have significant effects on firm cash holdings. Correlations are standardized to report the effect of a one-standard-deviation change in characteristics on the cash ratio. Our sample consists of public firms that report financials in Compustat and have Center for Research in Security Prices (CRSP) returns available. We use four-year firm averages for each determinate and cash ratios as of 2023:Q4 for the current period and 2019:Q4 for the pre-pandemic period. Regressions include industry fixed effects at the two-digit NAICS level and the log of total assets to control for firm size. Intangible assets are calculated as in Peters and Taylor (2017); cash flow volatility is calculated as in Han and Qui (2007); Tobin's Q is calculated as in Ottenello and Winberry (2019).

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