

The dollar, bank leverage and real economic activity: an evolving relationship

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ONLINE APPENDIX

Figure 1: Total assets and book equity of 17 US and 26 euro area banks

United States	Bank of America Corporation; Bank of New York Mellon Corporation; Capital One Financial Corporation; Citigroup Inc.; Citizens Financial Group Inc.; Fifth Third Bancorp; JPMorgan Chase & Co.; Morgan Stanley; Goldman Sachs Group Inc.; Northern Trust Corporation; PNC Financial Services Group Inc.; Regions Financial Corporation; State Street Corporation; SunTrust Banks Inc.; Truist Financial Corporation; U.S. Bancorp and Wells Fargo & Company.
Euro area	AIB Group Plc; Banca Monte dei Paschi di Siena SpA; Banco Bilbao Vizcaya Argentaria SA; Banco Bpm SpA; Banco de Sabadell SA; Banco Popular Español SA; Banco Santander SA; Bank of Ireland Group; Bankia SA; BNP Paribas SA; CaixaBank SA; Commerzbank AG; Crédit Agricole SA; Crédit Industriel et Commercial SA; Deutsche Bank AG; Dexia SA; Erste Group Bank AG; ING Groep NV and Nordea Bank Abp.; Intesa Sanpaolo SpA; KBC Group NV; Natixis SA; Raiffeisen Bank International AG; Société Générale SA; UniCredit SpA; Unione di Banche Italiane SpA.

Sources: Datastream Worldscope; authors' calculations.

Figure 2: Leverage and VIX index

Leverage	Total assets divided by equity for the broker-dealer sector in the US.
VIX	CBOE Volatility Index.

Sources: Federal Reserve, *Flow of Funds*; Bloomberg; authors' calculations.

Figure 3: Deviation from covered interest parity

US dollar index	Federal Reserve Board trade-weighted US dollar index, broad, goods.
Mean cross-currency basis spread	Mean of five-year cross-currency basis spread across AUD, CAD, CHF, DKK, EUR, GBP, JPY, NOK, NZD and SEK.

Sources: Federal Reserve Bank of St Louis (FRED); Bloomberg; authors' calculations.

Figure 4-5: Impulse responses of global PMIs (excluding the US) and global trade growth to dollar appreciation

World equity price	Weighted average of equity prices in major local stock exchanges across 32 economies based on GDP and PPP exchange rates.
US dollar index	Federal Reserve Board trade-weighted US dollar index, other important trading partners, goods.
Global PMI	Simple average of manufacturing PMIs across 31 economies (excluding the US) (less countries for earlier periods due to data constraints).
Global trade growth	World trade volume index, seasonally adjusted.

Sources: Federal Reserve Bank of St Louis (FRED); CPB Netherlands Bureau of Economic Policy Analysis; Bloomberg; Datastream; IHS Markit; authors' calculations.

Figure 6: Factor loadings of the first principal component of financial variables

Equity (1)	MSCI All Country World Index, local currency (2,844 constituents; large and mid-cap firms in 23 advanced economies and 26 EMEs; US (56%), Japan (7%), UK (5%), China (4%), France (3%), others (25%)).
Equity (2)	MSCI All Country World Industrials Index, local currency (432 constituents).
Equity (3)	MSCI Emerging Markets Index, local currency (1,194 constituents).
Equity (4)	Weighted average of equity prices in major local stock exchanges across 32 economies based on GDP and PPP exchange rates.
Spread (1)	ICE BofAML Global Corporate Index, investment grade, option adjusted spread (14,404 constituents).
Spread (2)	ICE BofAML Global High Yield Index, below investment grade, option adjusted spread (3,131 constituents).
Spread (3)	ICE BofAML Global Non-financial Corporate Index, investment grade, option adjusted spread (10,346 constituents).
Spread (4)	ICE BofAML Global Industrial Index, investment grade, option adjusted spread (8,430 constituents).
VIX	CBOE Volatility Index.
USD	Federal Reserve Board trade-weighted US dollar index, broad, goods.

Sources: Federal Reserve Bank of St Louis (FRED); Bloomberg; Datastream; ICE BofAML indices; MSCI; authors' calculations.

Figure 7: Dollar denominated credit to emerging market economies

Total credit	Total credit denominated in USD to non-banks in EMEs.
Loans	Loans denominated in USD to non-banks in EMEs.
US dollar index	Federal Reserve Board trade-weighted US dollar index, other important trading partners, goods.

Sources: Federal Reserve Bank of St Louis (FRED); Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; national data; BIS local banking statistics; authors' calculations.

Table 1: Nowcasting PMIs with the first principal component of financial variables

PMI	Global manufacturing PMI.
pc	First principal component of the following variables: equity (1-4), spread (1-4), VIX and USD (see Figure 6 for variable descriptions).

Sources: Federal Reserve Bank of St Louis (FRED); Bloomberg; Datastream; ICE BofAML indices; IHS Markit; MSCI; authors' calculations.
