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TO WHAT EXTENT DID STOCK INDEX FUTURES CONTRIBUTE TO THE OCTOBER 1987 STOCK MARKET CRASH?*

Antonios Antoniou and Ian Garrett

The October 1987 worldwide stock market crash has been labelled variously a panic, a debacle, a long overdue price correction and the burst of a speculative bubble to name but a few. As noted in the Presidential Task Force Report (1988) establishing the cause(s) of the crash is important given the profound effect it had on confidence (see Roll (1988) for one explanation of the cause of the crash). Of at least equal, if not greater, importance, however, is why the initial downward pressure on prices was converted into the rather bewildering collapse that followed. This issue has received quite a substantial amount of attention in the United States (see *inter alia* Blume *et al.* (1989), Furbush (1989) and especially Harris (1989)). A number of these studies of the crash in the United States have focused on various aspects of the relationship between stock index futures and the underlying stock index (see especially Harris (1989)) to determine whether there was a breakdown between the two markets, although none have examined the crash in quite the same way as we do here. The issue of market breakdown was also considered quite extensively in the Presidential Task Force Report.

Essentially the argument is that the two markets, that is, the underlying spot market and the derivative futures market, should effectively function as one market if futures are to serve their designated role as, amongst other things, a means for hedging stock market risk and a vehicle for price discovery. During the crash, however, the question arises as to whether the two markets functioned as one or whether the link between the two markets broke such that they effectively functioned as two separate entities. The point here is that if a cascade effect is observed, the two markets did not operate as one and futures could not effectively perform their prescribed role. The evidence in Harris (1989) suggests that this was the case in the United States. Unfortunately there has, to our knowledge, been little systematic empirical investigation of the crash in the United Kingdom. We aim to rectify this here. Using minute by minute values of the FTSE 100 Index and minute by minute transaction prices for the December 1987 stock index futures contract, we investigate the pricing relationship between these two markets on October 19th and 20th, 1987 to try and determine whether the link between the two markets broke, once the effects of non-synchronous trading are accounted for. To anticipate the results,

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